

MICROpendium

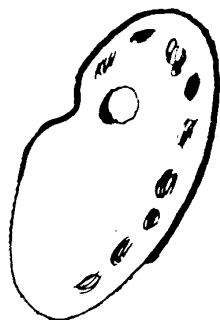
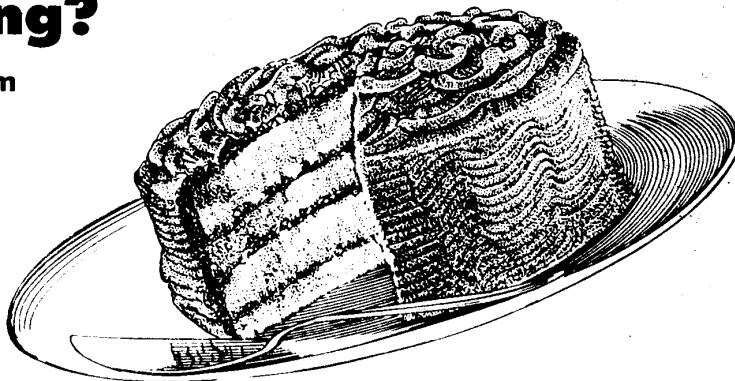
Volume 6 Number 1

February 1989

\$2.00

What's cooking?

Regena serves up a program
in Extended BASIC



Change your palette

This program lets Geneve owners
use 512 colors to customize their
Extended BASIC color selection

REVIEWS

- Triad
- Superbasic
- PEB Prototype board
- Keyboard Overlays
- Computer Phonebook
- St. Valentine's Day Card
- 1989 Calendar

HARDWARE PROJECTS

- ☐ Use Super Extended BASIC
with the Widget cartridge expander
- ☐ PEB card extender makes it
easier for hardware hackers

INSIDE:

Columns on Extended BASIC and c99, programs to enhance menus and print disk labels, utilities for speech synthesizers and Myarc questions are answered

Big selection of software for the Texas Instruments TI-99/4A Computer.

Software



Home Management, Personal Finance, Education, Arcade-type games — all in the big Texas Instruments Home Computer software library.

Tex Comp continues to stock the world's largest selection of TI Software. The TI Software library on module, disk and cassette and is considered the best in the home computer software field. TI utilized the talents of such industry leaders as Scott Forsman, Milton Bradley, Microsoft Corp., Scott Adams, Addison Wesley Publishing, DLM, Milliken Publishing, Scholastic Inc., Imagic, Spinnaker and the list goes on and on.



Charge-It On Your
Visa or MasterCard



(818) 366-6631

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

HOME ENTERTAINMENT

MODULES

PHM 3229	Hopper.....	4.95
PHM 3023	Hunt the Wumpus.....	4.95
PHM 3052	Tombstone City.....	4.95
PHM 3053	TI Invaders.....	4.95
PHM 3054	Car Wars.....	4.95
PHM 3057	Munch Man.....	4.95
PHM 3056	Alpiner.....	4.95
PHM 3112	Parsec.....	4.95
PHM 3031	The Attack.....	4.95
PHM 3194	Jawbreaker II.....	5.95
PHM 3110	Chisholm Trail.....	5.95
PHM 3034	Hustle.....	6.95
PHM 3037	Handman.....	6.95
PHM 3025	Mind Challengers.....	8.95
PHM 3036	Zero Zap.....	8.95
PHM 3038	Connect Four.....	8.95
PHM 30420	Tunnels of Doom (with disk).....	9.95
PHM 30421	Tunnels of Doom (with tape).....	9.95
PHM 3067	Othello.....	9.95
PHM 3220	Micro Surgeon.....	9.95
PHM 3219	Super Demon Attack.....	9.95
PHM 3222	Fathom.....	9.95
PHM 3233	Burgertime.....	9.95
PHM 3131	Moonline.....	9.95
PHM 3146	Munchmobile.....	11.95
PHM 3197	Slimoids.....	15.99

ADVENTURES

PHM 3041D	Adventure Module & Pirate Adv.(disk).....	6.95
PHM 3041T	Adventure Module & Pirate Adv.(tape).....	6.95
ADVENTURE SERIES (must be used with PHM 3041 module)		
specify disk or tape with order		
Adventureland.....		4.95
Mission Impossible.....		4.95
Voodoo Castle.....		4.95
The Count.....		4.95
Strange Odyssey.....		4.95
Mystery Fun House.....		4.95
Pyramid of Doom.....		4.95
Ghost Town.....		4.95
Savage Island I&II (two adventures).....		4.95
Golden Voyage.....		4.95
Knight Ironheart Adventure.....		4.95
****SPECIAL-ALL ABOVE ADVENTURES ON DISK OR TAPE.....		17.95
Spiderman Adventure.....		7.95
Incredible Hulk Adventure.....		7.95
Buckaroo Banzai Adventure (based on the movie).....		7.95
Sorcerer of Claymorgue Castle.....		7.95
****SPECIAL-ALL OF THE ABOVE FOUR + HINT BOOK + TWO NEW BONUS ADVENTURES.....		17.95
****SUPER ADVENTURE SPECIAL-BOTH OF THE ABOVE SPECIALS + COMPLETE HINT BOOK+ADVENTURE MODULE.....		29.95
PHM 3189	Return to Pirate's Island (self contained adventure on module with graphics).....	11.95
NBX Programs (NBX Unit Required)		
PHM 3154	Terry Turtle's Adventure.....	2.95
PHM 3155	I'm Hiding.....	2.95

COMPUTER PROGRAMMING AIDS

MODULES

PHM 3999	Super Extended Basic.....	49.95
PHM 3058	Editor Assembler.....	9.95
PHM 3058	Mini Memory (with Writer II).....	12.95

DISKETTE PROGRAMS

PHD 5007	Teach Yourself 99/4A Basic.....	4.95
PHD 5019	Teach Yourself Extended Basic.....	4.95
PHD 5004	Programming Aids I.....	4.95
PHD 5005	Programming Aids II.....	4.95
PHD 5012	Programming Aids III.....	4.95
PHD 5077	Programming Aids I, II, III.....	9.95
PHD 5067	Beginning Basic Tutor.....	4.95
PHD 5076	Text to Speech (Ex Basic Speech).....	4.95
PHD 5098	TI Forth & manual (Ed/Assem req.).....	19.95
PHD 5078	TI Forth Demo Disk (Ed/Assem).....	4.95
PHD 5079	TI Forth Source Code (2 disks).....	4.95

CASSETTE PROGRAMS

PNT 6006	Programming Aids I.....	4.95
PNT 6007	Teach Yourself 99/4A Basic.....	4.95
PNT 6019	Teach Yourself Extended Basic.....	4.95
PNT 6067	Beginning Basic Tutor.....	4.95

EDUCATION

MODULES

PHM 3002	Early Learning Fun.....	4.95
PHM 3003	Beginning Grammar.....	4.95
PHM 3010	Physical Fitness.....	4.95
PHM 3010	Music Maker.....	9.95
PHM 3021	Weight Control & Nutrition.....	10.95
PHM 3109	TI LOGO II (32K req.).....	12.95
PHM 3015	Early Reading (speech syn. req).....	9.95
PHM 3043	Reading Fun.....	9.95
PHM 3046	Reading On.....	9.95
PHM 3047	Reading Roundup.....	9.95
PHM 3048	Reading Rally.....	9.95
PHM 3082	Reading Flight.....	9.95
PHM 3027	Addition & Subtraction I.....	9.95
PHM 3028	Addition & Subtraction II.....	9.95
PHM 3029	Multiplication I.....	9.95
PHM 3049	Division I.....	9.95
PHM 3050	Numeration I.....	9.95
PHM 3051	Numeration II.....	9.95
PHM 3061	Scholastic Spelling 5 (speech).....	9.95
PHM 3091	Milliken Subtraction.....	9.95
PHM 3092	Milliken Multiplication.....	9.95
PHM 3093	Milliken Division.....	9.95
PHM 3094	Milliken Integers.....	9.95
PHM 3098	Milliken Number Readiness.....	4.95
PHM 3099	Milliken Laws of Arithmetic.....	4.95
PHM 3100	Milliken Equations.....	4.95
PHM 3101	Milliken Measurement of Formulas.....	4.95
PHM 3114	Alligator Mix.....	6.95
PHM 3115	Alien Addition.....	6.95
PHM 3119	Meteor Multiplication.....	6.95
PHM 3118	Minus Mission.....	6.95
PHM 3177	Face Maker.....	9.95
PHM 3178	Story Machine.....	9.95

DISKETTE PROGRAMS

PHD 5009	Music Skills Trainer.....	4.95
PHD 5011	Computer Music Box.....	4.95
PHD 5018	Market Simulation.....	4.95
PHD 5030	Speak & Spell II (Ex Basic req.).....	9.95
PHD 5031	Speak & Math (TE-II req.).....	4.95
PHD 5042	Spell Writer (TE-II req.).....	4.95



DISKETTE PROGRAMS NEW LOW PRICES!

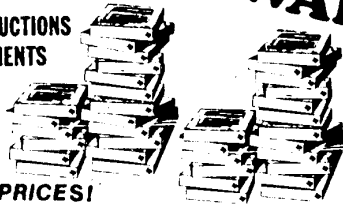
PHD 5002	TI-TREK (TE-II req. for speech).....	4.95
PHD 5010	Mystery Melody.....	4.95
PHD 5015	Oldies But Goodies I.....	4.95
PHD 5017	Oldies But Goodies II.....	4.95
****SPECIAL	Oldies But Goodies I & II.....	7.95
PHD 5025	Sat. Night Bingo (Ex-Basic & Speech).....	4.95
PHD 5037	Draw Poker (Ex-Basic).....	4.95
CASSETTE PROGRAMS		
PNT 6002	TI-Trek (TE-II req. for speech).....	4.95
PNT 6010	Mystery Melody.....	4.95
PNT 6015	Oldies But Goodies I.....	4.95
PNT 6017	Oldies But Goodies II.....	4.95
****SPECIAL	Oldies But Goodies I & II.....	7.95
PNT 6026	Sat. Night Bingo (Ex-Basic & Speech).....	4.95
PNT 6037	Draw Poker (Ex-Basic).....	4.95

TEX+COMP

Visa & Mastercard Holders Call Direct 24-Hour Order Line (818) 366-6631

The BIGGEST TI-99/4A SOFTWARE OFFER EVER

TEXAS
INSTRUMENTS
&
TEX+COMP
Announce
**DRASTIC PRICE REDUCTIONS
ON TEXAS INSTRUMENTS
COMPUTER
SOFTWARE**



DISKETTE PROGRAMS NEW LOW PRICES!

PHD 5026	Bridge Bidding I.....	4.95
PHD 5039	Bridge Bidding II.....	4.95
PHD 5041	Bridge Bidding III.....	4.95
PHD 5020	Music Maker Demo (use with module).....	4.95

CASSETTE PROGRAMS

see disk versions for req. i.e. TE-II

PHT 6009	Music Skills Trainer.....	4.95
PHT 6011	Computer Music Box.....	4.95
PHT 6018	Market Simulation.....	4.95
PHT 6031	Speak & Math.....	4.95
PHT 6042	Spell Writer.....	4.95
PHT 6026	Bridge Bidding I.....	4.95
PHT 6039	Bridge Bidding II.....	4.95
PHT 6041	Bridge Bidding III.....	4.95
PHT 6020	Music Maker Demo (use with module).....	4.95

MANAGEMENT AND SMALL BUSINESS

MODULES

PHM 3006	Home Financial Decisions.....	4.95
PHM 3007	Household Budget Management.....	4.95
PHM 3022	Personal Real Estate.....	4.95
PHM 3016	Tax/Investment Rec. Keeping (disk req.).....	4.95
PHM 3035	Terminal Emulator II.....	9.95
PHM 3044	Personal Report Generator (PRK req.).....	10.95
PHM 3113	Multiplan.....	14.95
PHM 3112	TI Writer.....	14.95
PHM 3013	Personal Record Keeping.....	15.95

DISKETTE PROGRAMS NEW LOW PRICE!

PHD 5001	Mailing List (upgraded version).....	4.95
PHD 5003	Personal Financial Aids.....	4.95
PHD 5021	Checkbook Manager.....	4.95
PHD 5022	Finance Manager.....	4.95
PHD 5024	Inventory Management.....	4.95
PHD 5027	Invoice Management.....	4.95
PHD 5029	Cash Management.....	4.95
PHD 5038	Lease/Purchase Decisions.....	4.95
PHD 5075	TI/Multiplan upgrade disk.....	4.95

CASSETTE PROGRAMS

PHT 6003	Personal Financial Aids.....	4.95
PHT 6038	Lease/Purchase Decisions.....	4.95

Send for **1989** Tex-Comp catalog & buyer's guide only \$2.00 (comes with \$5 savings certificate)

Send order and make checks payable to

TEX+COMP

PO Box 33084, Granada Hills, CA 91344

TERMS: All prices FOB Los Angeles. For fastest service use cashiers check or money order. Add 3% shipping and handling (\$3.00 Minimum). Fast of Mississippi 4.5%. Add 1% for C.O.D. Card orders. Prices and availability subject to change without notice. We reserve the right to limit quantities.

TEX+COMP
TI USERS SUPPLY
PRESENTS:

TI-COUNT SMALL BUSINESS SOFTWARE

General Ledger
Accounts Receivable
Accounts Payable
Inventory
Payroll
Mail System

**New Lower
Price**

SPECIAL 1988 OFFER ALL SIX PROGRAMS PLUS
AUTO COUNT AUTO EXPENSE
RECORD PROGRAM.....89.95
A \$250.00 SAVINGS !!!!!



MATH AND ENGINEERING

DISKETTE PROGRAMS NEW LOW PRICE!

PHD 5006	Math Routine Library.....	4.95
PHD 5008	Electrical Engineering Library.....	4.95
PHD 5013	Graphing Package.....	4.95
PHD 5016	Structural Engineering Library.....	4.95
PHD 5044	AC Circuit Analysis.....	4.95

CASSETTE PROGRAMS

PHT 6006	Math Routine Library.....	4.95
PHT 6008	Electrical Engineering Library.....	4.95
PHT 6013	Graphing Package.....	4.95
PHT 6016	Structural Engineering Library.....	4.95
PHT 6044	AC Circuit Analysis.....	4.95

****SPECIAL--ALL 5 OF THE ABOVE ON DISK OR TAPE---17.95

SPECIALS

**Original TI Joysticks
\$7.95 (pair)**

**Replacement Console
Power Supply
(external transformer)
\$9.95**

**Replacement 99/4A
Keyboards
(plug in connection)
\$7.95**

**Cassette Cable
\$5.95
Console Dust Covers
\$7.95**

SEND FOR OUR LATEST
CATALOG AND BUYER'S
GUIDE. ONLY \$2.00 &
INCLUDES A \$5 SAVE-
INGS CERTIFICATE!!!

PROTECT YOUR INVESTMENT WITH A BACK-UP TI99/4A

At only \$79.95 the Texas Instruments 99/4A home computer is still the wisest choice for any individual or family just starting out in computing. But for those of you who already own a 99/4A and have purchased hundreds or even thousands of dollars in peripherals and software, buying a back-up computer for under eighty dollars is the smartest and least expensive way to protect the investment in your system.

\$79.95*



TI-99/4A

Are you using your 99/4A in the office and wish you had another to use at home? Is your family squabbling over who gets the computer first? You can put your back-up computer to use at once to solve these problems, and rest assured that your primary system is protected too.

Time is running out. The Texas Instruments home computer will not be available for sale much longer. Buy your back-up TI-99/4A now and protect your home computer system investment for the years to come.

*Shipping, handling & insurance on this special offer is \$10.00 (Continental U.S.) to any UPS deliverable address, HI, AK, Canada and APO slightly higher.



AUTHORIZED DEALER



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

NOTE: Payment in full must accompany all orders. Credit card. Company check or Money order for immediate shipment. Personal Checks require up to 4 weeks to clear. California orders add 6.5% sales tax.

Contents

MICROpendium

MICROpendium is published monthly for \$20 per year by Burns-Koloen Communications Inc., 16606 Terrace Dr., Austin, TX 78728. Application to Mail at Second-Class Postage Rates is Pending at Austin, Texas and additional offices. POSTMASTER: Send address changes to MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

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

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

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

Display advertising deadlines and rates are available upon request.

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

Foreign subscriptions are \$25.25 (Mexico); \$27.50 (Canada) \$25.00, surface mail to other countries; \$37 airmail to other countries.

All editions of MICROpendium are mailed from the Round Rock (Texas) Post Office. Mailing address: P.O. Box 1343, Round Rock TX 78680

Telephone: (512) 255-1512

Source: TI4596

CompuServe: 75156,3270

Delphi TI NET: MICROPENDIUM

GENie: J.Koloen

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

Regena on BASIC

Bake a cake and print the recipe.....Page 10

Extended BASIC

Reading numbers properly.....Page 14

c99

Modified file I/O program.....Page 16

Hardware projects

SEB with the Widget cartridge expander.....Page 26

Card extender makes working on PEB cards easier.....Page 29

Geneve 9640

Palette program lets you redefine XBASIC colors.....Page 30

Myarc Q&A.....Page 33

Disk labeler

Customize your disk labels.....Page 34

Reviews

Triad.....Page 36

Superbasic.....Page 37

P-Box Prototype Board.....Page 39

Micro-Reviews: Keyboard Overlays, The Computer Phonebook, St.

Valentine's Day Card, 1989 KBGB Girlie Calendar.....Page 40

Newsbytes

Address changes, bulletin boards and an unofficial interface standard for the TI.....Page 42

User Notes

Use an arrow to point the way on your XBASIC menus, two speech utilities and a MICROpendium index enhancement.....Page 36

Classified.....Page 47

Programming conventions

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

1. All BASIC and Extended BASIC programs are run through Checksum, the numbers that follow exclamation at the end of each program line. Do not enter these numbers or exclamation points. Checksum was published in the October 1987 edition.

2. Long XBASIC lines are entered by inputting until the screen stops accepting characters, pressing Enter, pressing FCTN REDO, cursoring to the end of the line and continuing input.

Best Buys From TENEX

No Gimmicks, No Hidden Charges, No Nonsense, Just Low Prices and Great Service!



Dust Cover & Everything Book

Discover the savings and easy shopping available from TENEX Computer Express PLUS receive a FREE dust cover for your TI Cover is anti-static, 8-gauge vinyl sewn to our exacting standards with reinforced seams. Custom tailored with exclusive rear corner slit accommodating cables and speech synthesizer. Show your computer you care. Get to know our great products, extensive selection and fast service with a FREE copy of our *Everything Book* for TI. (\$2.95 Shipping Charge)

34465 TI Console Cover & Catalog (M6E)

The 39¢ Diskette

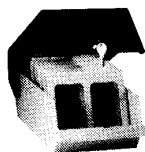
From micro fal

Are you paying too much for diskettes? Try our first quality, prime, 5-1/4" diskettes (no rejects, no seconds) at these fantastic sale prices and save, save, SAVE! Disks are packaged in boxes of 50; including diskettes in sleeves, labels, and write-protect tabs.

Each diskette is certified to be 100% error free and comes with a lifetime warranty (if you have a problem, we'll replace the diskette). All diskettes include hub reinforcement rings and write-protect notch.

All diskettes are double-density and work in either single or double-sided drives.

SS, DD Diskettes, Box of 50
32391 \$19.50 - 39¢ ea.
DS, DD Diskettes, Box of 50
32403 \$24.50 - 49¢ ea.



\$9.95

Diskette Storage

- 100 disk (5-1/4") capacity.
- Lock and keys for extra security and easy carrying.
- Includes 8 index dividers with labels for organization of filing and retrieval.
- Made of durable anti-static, high impact plastic.
- Attractive smoke color lid. Sug. Retail \$19.95

66826

NOW ONLY \$9.95

Hardware

Printers

Okidata 180 Printer\$224.95
Okidata Microline 183\$279.95
Star NX-1000\$CALL
Star NX-1000 Rainbow\$CALL
Star NX-15\$CALL
Seikosha SP 1200-AI\$199.95
Seikosha SP 1600-AI\$CALL

Computers

Geneve 9640\$CALL
Amiga 500\$CALL
Amiga 2000\$CALL
TENEX Turbo (Loaded)\$595.00

Monitors

13" Color Composite\$CALL
Magnavox CM8762, Color\$269.95

Joysticks/Controllers

NEW! Wico Ergostick\$19.95
Epyx 500XJ\$15.95
Suncom Tac 5\$14.95
TI Adapter\$5.95

P-Box Cards

CorComp RS-232\$89.95
CorComp 32K\$119.95
CorComp 9900 Disk Cont.\$149.95
CorComp 512K\$253.00
Myarc RS-232\$89.95
Myarc 512K w/XB\$289.95
Rave Speech Card\$49.95

Accessories

Universal Printer Stand+\$14.95
Data Transfer Switch\$24.95
RF Modulator (99/4A)\$19.95
Power Transformer (99/4A)\$19.95
1/2 Ht. 360K Floppy Drive\$89.95
Parallel Printer Cable 5 ft.\$24.95
Parallel Printer Cable 10 ft.\$34.95
Composite Monitor Cable\$7.95
TI Cart. Expander\$19.95

Ribbons

NX-1000 Black\$5.95
Okidata 120/180/183\$8.95
Axiom GP-550\$10.95
Gemini 10X, SG-10/15\$2.99
NX - 1000 Rainbow9.95

TI 99/4A Software

Adv. Series Pkg., Disk\$17.95
Adv. Series Pkg., Cass.\$17.95
Better Banners, Disk\$19.95
Certificate 99, Disk\$19.95
Console Writer, Cart.\$14.95
Font Writer II, Disk\$24.95
Nibbler, Disk\$9.95
PEP, Disk\$59.95
Pro Typer, Cart.\$19.95
Printers Apprentice, Disk\$19.95
Print Wizard, Disk\$19.95
Terminal Emulator II, Cart.\$19.95
TI Artist, Disk\$19.95
TI Logo II (module)\$29.95
TI Planner, Cart.\$26.95
TI Planner Plus, Cart.\$49.95
QS Sideways, Disk\$14.95
Real TI/IBM Connection\$59.95
Word Writer, Cart.\$39.95
Word Writer Plus, Cart.\$59.95
4A Flyer, Cart.\$19.95
4A Talk, Disk\$19.95
99 Fortran, Disk\$49.95

Free! 48 Page "Everything" Book With Any Order!

\$89.95

Get TI-Count Accounting For Less

Pike Creek Accounting Package

This is the only accounting system to be endorsed for the TI 99/4A by Texas Instruments. It includes all the features of systems costing up to thousands of dollars for only a fraction of the price. You get all these: *General Ledger* - monitors up to 650 accounts, *Accounts Receivable* - keeps up to 200 customer accounts, *Accounts Payable* - features the ability to hold 200 vendor ledger accounts, *Inventory* - stores up to 700 items in 4 departments, *Payroll* - provides you with payroll checks and stubs of your choice, *Mail System* - change, move, or merge files. Get all 6 systems plus a bonus, the *Auto - Count Tax Log*.

75833 Pike Creek Accounting Package, Disk

\$89.95

The Best Prices
The Best Service
WHY SHOP ANYWHERE ELSE?

Gives You More Control

PIO PRINTER INTERFACE PLUS. You'll be able to connect most parallel input printers directly to your computer. Just plug one end into the side of your console and the other into the printer. 120 day warranty. From CorComp. Sug. Retail \$59.95
42250 Parallel Printer Interface \$49.95

Only

\$49.95

Give The "Foot" The Boot

You'll find our Peripheral Extension Cable to be a lifesaver. One end of this 30" cable plugs snugly into the expansion port on the right side of the 99/4A console; the other connects to the 44 contact slot of the PE Box cable, or any other stand-alone peripheral (such as the speech synthesizer, memory expansion, etc.). Customize your system set-up today!

22633 Peripheral Extension Cable

\$24.95

From Your Friends At

TENEX
Computer
Express

We gladly accept mail orders!
P.O. Box 6578
South Bend, IN 46680

Questions?
Call 219/259-7051

Ad
M6H

Shipping Charges

Order Amount	Charge
less than \$19.99	\$3.75
\$20.00-\$39.99	4.75
\$40.00-\$74.99	5.75
\$75.00-\$149.99	6.75
\$150.00-\$299.99	7.75
\$300.00 & up	8.75

MasterCard

Amex

Discover

VISA

No Extra Fee For Charges!

ORDER TOLL FREE
1-800-348-2778

WE VERIFY CHARGE CARD ADDRESSES

APO, FPO, AK, HI, CN, VI, GU, and foreign orders are subject to additional shipping charges. NOTE: Due to publishing lead-times, product prices and specifications are subject to change without notice.

Comments

No more release dates from Asgard or Myarc; we now accept credit cards

This will come as welcome news to many subscribers: MICROpendium now accepts credit cards. Visa and Mastercard only. The minimum charge is \$9 and we can take orders by mail or phone. Credit cards may be used for subscriptions, back issues or magazine holders.

SOFTWARE DEADLINES

Myarc and Asgard are no longer offering release dates on major products. This includes the Press word processor from Asgard and all Geneve software.

This is probably a good policy to adopt and is becoming the norm for software developers regardless of the computer brand. Not even giant Microsoft has been able to make deadlines on its releases, not to mention Ashton-Tate. Myarc and Asgard are no different, and as Jack Riley of Myarc points out, software development simply doesn't avail itself of deadlines. "And it doesn't matter how much money or resources you put into it," Riley notes.

Software development basically starts with a programmer in front of a terminal and goes from there. The bigger the project the more time-consuming it becomes. Even when the project goes from one programmer to a dozen or more, evidence from throughout the computer industry suggests that software development always goes at its own pace.

I don't like the idea of not knowing when a program is going to be available, but then I don't like it when the deadline passes and the program still isn't ready. Which is more palatable? It depends on the person, but as we've all seen over the past several years, no matter who is doing the project, it never seems to get finished when originally believed. Knowing that something is under development is probably as much as we can expect in the future. At least it will give us something else to talk about besides how nothing is ready on time.

UPDATES ON GENEVE SOFTWARE

Version 1.15 of MDOS is now finished, though it hasn't been released. The hard disk version of DOS, Advanced BASIC and Pascal are nearing completion. Again, once these programs are finished, they will be sent to registered Geneve owners. Version 1.29 of MDM5 is also ready. V1.27 was posted on bulletin boards earlier this year. Improvements in MDM5 principally have to do with backing up hard disks.

LOOKING FOR GENEVE WRITER

Mike Dodd is taking a sabbatical from his Geneve column and we're looking for someone who'd like to carry on. Anyone who is interested is encouraged to write us with your thoughts on the direction the column should go as well as a sample column.

—JK

1989 Fairs

FEBRUARY

TI-Fest West '89, Feb. 18-19, Clarion Hotel at Balboa Park, San Diego, California. For information, write TI-Fest West c/o Southern California Computer Group, P.O. Box 21181, El Cajon, CA 92021 or call the SCCG BBS, (619) 278-7155, and leave a private message to the sysop with your full name and address.

MARCH

West Coast Computer Fair, March 17-19, Brooks Hall, San Francisco. San Francisco 99ers to be at Booth 733. For further information, write San Francisco 99ers, 24816 Mango St., Hayward CA 94545.

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

BBS, (201) 241-8902.

APRIL

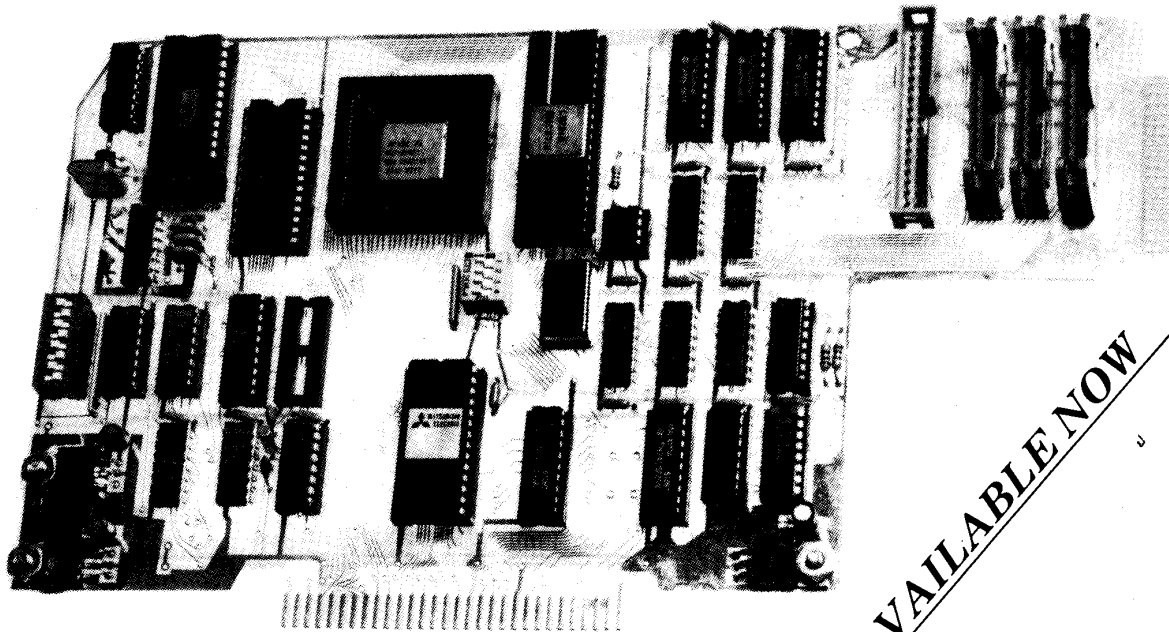
Fourth Annual New England TI Fayuh, 10 a.m.-5 p.m. April 1, Ramada Inn of IH95 in Woburn, Massachusetts. For information, contact the Boston Computer Society TI99/4A User Group, One Center Plaza, Boston MA 02108.

MAY

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

This TI event listing is a permanent feature of MICROpendium. User groups and others planning events for TI/Geneve users may send information for inclusion in this standing column. Events will remain listed throughout the year.

THE MYARC Hard & Floppy Disk Controller with Streamer Tape Backup Support



AVAILABLE NOW

Features include:

- Hard drive transfer rate of 5Mbit per second, for speed comparable to an external RAM disk card
- Interfaces with standard, off the shelf, hard, floppy and streamer tape drives
- Built-in real time clock, for time and date stamping of files
- Supports up to four 5 1/4" and/or 3 1/2" floppy drives, mix or match
- All disk formats, SS/SD (90K), DS/DD (320/360K) and DS/QD (640/720K) supported
- MYARC Disk Manager V, the most intuitive and user friendly manager available
- One year limited warranty, 12 months parts, 6 months labor, is standard, an optional two, three or four year extended warranty is available

Feedback

Rocketman given 'flat tire' by Harry

Boy, Mr. Brashear, your review in the December 1988 MICROpendium left ol' Rocketman with a flat tire.

The only thing the little guy was trying to do is make life a little easier for those who get that sick feeling every month when the bank statement shows up in the mail. You know, the ones who never know quite how much money they have.

Fortunately, Rocketman is a turtle with a hard shell and a spare tire, so he'll be on the road toward his rocket soon. The program may not be written in assembly, but it is as professional as the docs you talked about in your review, because the package really does the job for those who sit down and take the time to use it. How long did it take you to learn TI-Writer? Well, you can learn Rocketman in about an hour and that's it — you have a tool that will make life easier when that bank statement comes every month.

Say, Harry, you aren't by chance one of those who doesn't balance to the penny are you? Or have you balanced lately?

John W. Rowles
California Programs
El Sobrante, California

P-GRAM Card great

I usually buy programs and accessories based on favorable reviews in MICROpendium. This time I had a P-GRAM Card when Mr. Brashear's review was published. The P-GRAM is fully as good as (if not better than) Mr. Brashear says. I have not had one "lock up" since I started running Extended BASIC from the P-GRAM Card. I am not a technical person. I find the manuals very "friendly."

In the future, I hope you can publish some "how to" articles on changing cartridge programs that have been extracted with the P-GRAM Card.

Tom Hall
Euless, Texas

Comments on Documentation

I am going to make comment on the documentation or "docs" that accompany a

program. Some programs don't even have docs on the disk, and a lot of these programs are not very user friendly.

Some documentation is written to high level, and the average user is perplexed and bewildered. The person who created the program knows how to run it and what it will do, but leaves the user confused on its use. Programs should be user friendly and easy to use, too.

Some programs give the user a menu with selections. These are easy to run. Other programs have secret FCTN and CTRL and number combinations in order to make them do certain things. If a FCTN or CTRL is used, why not put that on the screen as a guide?

Some programs are in BASIC, while others are in Extended BASIC and others in Assembly. These are the most confusing to load and run. No matter what language a program is written in, simple instructions should be written in the docs on how to load and run, and what the program is used for.

Harold Bingham
Ogden, Utah

Agrees with Dodd

I am anxious to read Mike Dodd's article (December 1988) explaining how to set up an AUTOEXEC file. Since I have not yet mastered my Geneve which I got last summer, this is kind of down my alley. I'm not a whiz with the computer, but I do like to learn new things about it. For me to understand it, it has to be rather basic. Once I understand it, I can figure out how to solve my problems. I have come to the same conclusion that Mike Dodd suggests in his article in the December issue: that of joining a network such as Delphi or GENIE. In fact, I ordered a Packard Bell modem from Tenex early last December, but I am still waiting for the modem cable, which they told me today is still on back order and they do not expect it for another two to three weeks.

It was interesting to hear the leadership of the Chicago User Group make the statement at last month's meeting that there are still new members joining the group, and they are not as advanced as the members who have been with the group since its inception. The speaker went on to say that

we should give demos on things like TI-Writer and Multiplan at our monthly meetings. A large number of people raised their hands when asked if they would be interested. It was well over half the members present. I think your magazine does some of this through User Notes and the like. Do you think it would be worthwhile to run an update on some of these old programs that are still around and still widely used? Although I have used these two programs quite a bit, I'm sure I could learn more about them. One thing I have not yet learned is how to reduce the "Top" margin default on TI-Writer.

Edward Herdliska
Waukegan, Illinois

We'll try to publish more about these programs. — Ed.

Code is original

We have written a letter directly to Tex-Comp with regards to their advertisement in the December issue on page 22 for DM1000, and we hope the matter can be resolved as soon as possible. The Ottawa user group has incorporated strict penalties within its constitution regarding piracy of another's work, and therefore, the connotation in the advertisement (if "rip off" does in fact mean "to steal") is against everything that the Ottawa group stands for.

May we beg your indulgence to notify the public that we are actively trying to resolve the problem with Tex-Comp, and assure them that DM1000 was written, and later updated, by several users within our group, from strictly ORIGINAL code. We admire CorComp and their contribution to the TI community, and do not wish them, or the user, to think that we would steal their work.

Jane Laflamme
President
Ottawa TI Users Group

Needs mail-list hints

I am in need of some helpful hints on the mail-list option.

I have tried every way I could think of but to no avail. I start my "letter" with .FI and a cr in line 0001, then "M-L DSK2.NAME" in line 0002 or 0003 and
(See Page 11)

Typewriter 99

Typewriter 99 turns your TI-99/4A or Myarc Geneve 9640 into a modern, electronic typewriter.

Why would you want to do THAT?

Sometimes the newest way isn't always the best and most efficient way to do something. It's still easier to keep a rolodex than an electronic phone list. It's easier to balance your checkbook by hand than to do it on your computer. If you really thought about it, you could probably think of a dozen things you could do just as well or more easily by hand than with a computer.

Sometimes it's easier to use a typewriter than a word processor.

Ever try to use a word processor to type up a quick label? How about address an envelope? Ever fill out a form with a word processor? How many people use a word processor to dash off a 3 line note to a friend? For many small, every-day jobs (and most writing is just that), a word processor is too much. It's like using a jet plane to go to the grocery store. Plus, word processors are awfully intimidating to the non-computer user. Do you have a spouse or relative who won't use the computer because it's "too complicated", but is perhaps a wiz with the computer controlled microwave or washer?

This is where *Typewriter 99* comes in.

Even the most rabid computer-phobe will use a typewriter - even one of the new kinds with the little LCD screen. *Typewriter 99* turns your TI-99/4A into one of these sophisticated "electronic" typewriters. It will right-justify text, features word wrap, auto-centering of text, bold and underline text, margins that can be set at any time, tabs, a line at a time or character at a time printout, line spacing control, even an audible key-click. *Typewriter 99* is filled with little touches that make it easy to use - a bell goes off when are near the end of a line, the previous 6 lines typed are displayed on the screen, a little graph shows you where you are on the line at all times, you can set margins up to 132 characters wide, the program shows you where your tab stops are at all times, and much more.

Typewriter 99 is available in disk (requires TI-Writer or Editor/Assembler, 32K and a disk system), cassette (requires Mini-Memory) or cartridge forms. It will work with any printer. *Typewriter 99* is a simple to use program that recognizes that the best way to do something is not always the most modern way.

Introductory Special
Cassette or Disk versions - \$14.95
Cartridge version - \$24.95

Asgard Software, P.O. Box 10306, Rockville, MD 20850
(7 0 3) 2 5 5 - 3 0 8 5
(Mastercard, Visa, American Express accepted)

BASIC

Bake a cake and print the recipes

By REGENA

Years ago, I published a program called "Cookie File," which contained recipes for cookies. It was quite popular, and I converted it to TI Extended BASIC and to BASIC on all the other computers I had. One of the main suggestions I have had over the years was to add the printing option so that the recipe could be sent to the printer for a copy.

This month I have resurrected that program and changed it slightly. For the VIC-20, I had written "Bake a Cake," which was the same idea but cake recipes instead of cookie recipes. So that I won't be repetitious, this month's program is "Bake a Cake" for the TI99/4A with the printing option. I have used TI Extended BASIC to make it easier to print, but you can change back to regular console BASIC without much effort.

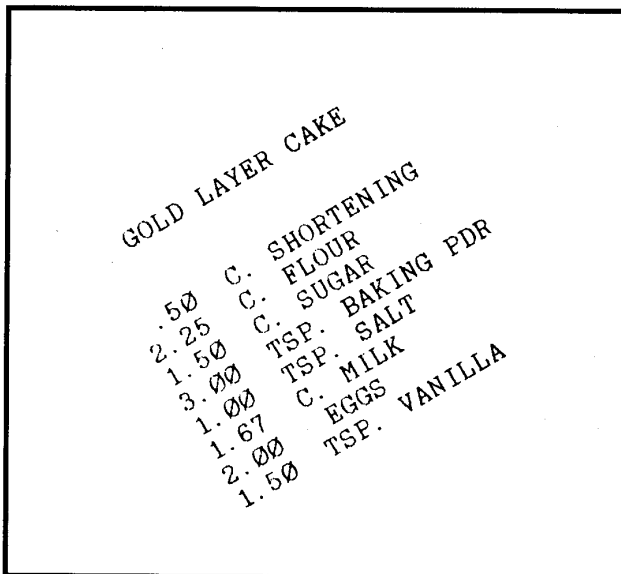
This program contains recipes for 12 different cakes. You can select the recipe, see it on the screen and print it on the printer. Then you may convert the recipe if you wish. For example, you may triple the recipe by entering the multiplier 3, or you may halve the recipe by entering the multiplier .5. The converted recipe will then appear on the screen, along with the option to print it. Keep in mind that some recipes don't work as well if they are multiplied or divided, but the computer will calculate the ingredients anyway.

Suppose you don't know what cake to make. Select the ingredient list. As the inventory is listed, press Y for yes if you have the ingredient, or N if you don't. (Please run this program with the ALPHA LOCK key in the down position.) After this inventory list is complete, the computer will tell you which recipes you can make with the ingredients you have indicated you have on hand.

For convenience in programming, the amounts in the recipes are given in decimals. For example, $\frac{3}{4}$ cup sugar is written as .67 c. sugar. When you multiply by 3, the result will be shown as 1.01 c. sugar, when you should really use only 1 cup sugar.

DATA statements are used to keep track of ingredients, inventory and recipes. The DATA statements in Lines 150-180 contain the measure, then the ingredient for 25 ingredients. Line 140 reads A\$, the measure and B\$(N,0), the name of the ingredient, then assigns INGS(N) equal to the measure plus a space plus the ingredient name. B\$ is used in the inventory list, and INGS\$ is used in printing the recipe. Z is the number of ingredients minus one (because the subscripts start with the number zero).

As you are typing the DATA statements, you may notice two or more commas together with nothing between them (,,). Be sure to get the right number of commas as you are typing. The commas indicate a null string, or a string variable equal to "".



The recipes are in the DATA statements in Lines 950-1060. The first item is the name of the cake. The next items are the amounts of the ingredients in this order: cups shortening, cups flour, cups sugar, cups brown sugar, tsp. baking powder, tsp. salt, tsp. soda, cups cherry juice, number of cherries, cups bananas (mashed), cups sauerkraut, cups milk, cups buttermilk, number of eggs, number of egg whites, tsp. red food coloring, ounces chocolate, tbsp. cocoa, tsp. vanilla, tsp. cinnamon, tsp. nutmeg, tsp. vinegar, cups salad oil, cups water and cups oatmeal. The DATA will contain a null string if the cake does not contain that

ingredient.

An example is the DATA statement of Line 950. This data is for Banana Cake. The recipe is .67 cup ($\frac{2}{3}$ cup) shortening, 2.5 cups flour, 1.67 cups sugar, 1 tsp. baking powder, 1 tsp. salt, 1 tsp. soda, 1 cup mashed bananas, .67 cup buttermilk and 2 eggs.

To print a particular recipe, Lines 340-460 RESTORE the data starting with a certain line, determined by the key pressed to choose a recipe. Line 470 READs and PRINTs the name of the cake. Line 500 READs the amount from the DATA statement. If the amount is a null or zero, that ingredient is not PRINTed. However, if there is a value, the value is printed, and the corresponding measure and name of the ingredient are printed from the INGS\$ array.

Line 510 defines variables AMT(N) and INGR\$(N) for the measure and ingredient for only those ingredients in the particular recipe. These values are used in printing the converted recipe, line 660, and in printing the recipe on the printer, Line 1160. F is the multiplying factor.

For the inventory list, the computer keeps track of your Y or N answers in the B\$(N,1) array, where N varies from 0 to 24 for the ingredients. Line 810 checks to see if an N is stored as a "no" answer for flour or sugar. If you have no flour or sugar, no cakes can be baked. YS is a variable for the number of Y answers. If there are not enough ingredients with a Y answer, you cannot make a cake (Line 820).

Line 840 RESTOREs the data for the recipes. Lines 850-880 check through the recipe for each cake. If there is an amount listed for an ingredient, the corresponding B\$(N,1) value is checked. If it is "N", you are lacking one of the ingredients required for the cake. The rest of the ingredients are skipped over, and the computer goes to the next recipe. If each of the required ingredients also has a B\$ value of "Y" for yes, the cake can be made, and the name of the cake is printed.

(See Page 11)

Feedback

(Continued from Page 8)

and a cr then compose my form letter with the usual *n* at the appropriate places, then after I finish the letter, I make up my M-L option value list with nothing in the lines before I PUT "1 name"

* "1 name" etc. BUT it won't work. What am I doing wrong?

I am blind and have someone to read to me but so far we haven't made the right choices. I can run the form letter with the "N" at the mail-list prompt and type in what I need at the prompt.

I belong to the Wichita Users Group, but no one seems to use the TI-Writer in the mail-list option, so no help from them.

I am in the process of making a pedigree form for my genealogy book, which has 1,750 names so far, and if I can get this function to work, I'll be able to print out pedigree sheets for other members of my clan.

Is there a limit to how many items I can include in my value list?

Will this mail-list prompt work with a ".na cr" in the form letter?

If it doesn't, I'll need to go back into the pedigree form and add exponential symbols to keep the form from being destroyed when I run it in Format mode.

Robert W. Bryant
Wichita, Kansas

If your letter is an accurate transcription of your use of the TI-Writer mailing list command, your error is obvious. It is not called by the command: M-L DSKx.FILENAME. Rather use this format:

.ML DSKx.FILENAME

Note the period before the "M." All formatter command lines begin with a period followed by the mnemonic.

If your letter incorrectly represented the .ML command, then write us again and include a printout or a disk with the formletter you are trying to use.

Asterisk problem

I have found the same problem in the word processor of Funnelweb 4.0 that Ralph Mills described in the January Feedback. Single asterisks followed by numbers do not print out, and wipe out some of the following characters as well, when run

through the formatter. Double asterisks followed by numbers print as single asterisks, and there are still some characters lost.

I do not know why this happens, but there is an easy fix to last until a newer version of the formatter corrects the problem. Use the transliterate command to convert another character to an asterisk.

Include this statement at the beginning of the file:

.TL 126:42 (and required carriage return)

Next, use the ~ (tilde) character (ASCII character number 126) wherever you need the asterisk to print. The transliterate command will print ASCII character 42 (*) whenever it comes across the ~ character.

Jerry Stern
Baltimore, Maryland

Not a bug

In response to Ralph Mills' problem with * followed by a number when using the TI-Writer formatter (Feedback, January 1989); this is not a bug, but rather a sometimes bothersome feature of the formatter. This IS documented starting on page 163 of the TI-Writer manual. An * followed by a number is used to assign text when using the mail list feature of the formatter for producing form letters. Unfortunately, if nothing has been assigned to that variable, the formatter just throws away the * and number.

There are several ways around this. You can put a space after the *, or a required space {}, or anything else except a number. You may also transliterate the * from some other character such as .TL 125:42. Then formatting C+(R){32}= POSITION would print correctly. Mr. Mills should not feel badly about not knowing about this feature. Many newsletter listings have been ruined because of this feature!

Richard Lauhead
St. Paul, Minnesota

Feedback is a forum for TI and Geneve users. We ask that writers limit themselves to one subject per letter. Excessively lengthy letters may be condensed by the editor. Send submissions to MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

REGENA—

(Continued from Page 10)

These are real recipes — some of my favorites. No baking instructions are given, but usually the person baking knows how to bake the cake and just needs to be reminded of the amount of each ingredient. In case you want to try these recipes, all of these recipes are for cakes to be baked in two 9-inch layers (although you may use a 9x13 rectangular pan). Mix the shortening with the sugars, add the dry ingredients alternately with the liquid, and then add the eggs and vanilla. Bake at 350 to 375 degrees.

In the cherry cake, cut up the cherries before adding to the mixture. For the oatmeal cake, first boil the water, and then add the oatmeal. Let that mixture cool while you mix everything else — add the oatmeal mixture last. The "wacky" cake you can mix all at once — just dump everything into one big bowl and mix it up. For the red velvet cake, combine the ingredients as usual, except for the vinegar and soda. Mix the vinegar and soda together and fold into the rest of the batter. The sauerkraut cake is a moist chocolate cake — just don't tell anyone what it is until AFTER it has been eaten. Rinse the sauerkraut well, then chop it into small pieces before combining it with the rest of the cake batter.

Yes, you may change the program to use your own recipes. Change some of the DATA statements in Lines 950-1060 to your own, and change the appropriate PRINT statements in Lines 280-310. Make sure all the ingredients are included (Lines 150-180).

To add recipes, add more DATA statements between Lines 1060 and 1070, add PRINTing in Lines 280-310, and add RESTORE statements in Lines 350-460. You will also need to change the KEY checking in Line 320 and the ON-GOTO statement in Line 340. If you use the existing ingredients you'll be okay without making changes. However, if you need to add ingredients, you'll need to add data in Lines 150-180 and change Line 130 to make Z the right number of ingredients. Line 120 will need to be changed so the DIMENSIONS of the first two items also have the right number of ingredients.

To PRINT the recipe on the printer, be
(See Page 12)

REGENA—

(Continued from Page 11)

sure to change Line 1130 to include your own printer configurations within the quotation marks.

Be sure you copy the DATA statements exactly for the correct ingredient list and recipes. There are no spaces except in the names of the cakes. If there are commas together, do not put spaces between the commas, and be sure you do not end a line with a comma. Lines 150-180 have a measurement (ending with a period), then an ingredient. Lines 950-1060 have lots of decimals and commas.

If you get any error messages when you run this program, the most likely cause is in the DATA statements.

And go ahead — try the sauerkraut cake!

If you prefer to save typing effort, you may have a copy of this program by sending \$4 to *REGENA, P.O. Box 1502, Cedar City, UT 84720*. Please be sure to specify the title, "Bake a Cake," that you need the TI Extended BASIC version, and whether you need cassette or diskette.

BAKE A CAKE

```

100 REM BAKE A CAKE !008
110 REM TI EXTENDED BASIC !0
74
120 DIM INGS$(24),B$(24,1),AM
T$(15),INGR$(15)!008
130 Z=24 !072
140 FOR N=0 TO Z :: READ A$,
B$(N,0):: INGS$(N)=A$&" "&B$(
N,0):: NEXT N !135
150 DATA C.,SHORTENING,C.,FL
OUR,C.,SUGAR,C.,BROWN SUGAR,
TSP.,BAKING POW.,TSP.,SALT,TS
P.,SODA,C.,CHERRY JUICE !038
160 DATA """,CHERRIES,C.,BANA
NAS,C.,SAUERKRAUT,C.,MILK,C.
,BUTTERMILK,EGGS,EGG WHITE
S,TSP.,RED COLORING !250
170 DATA OZ.,CHOCOLATE,TBSP.
,(XXXA,TSP.,VANILLA,TSP.,CIN
NAMON,TSP.,NUTMEG,TSP.,VINEG
AR,C.,SALAD OIL !192
180 DATA C.,WATER,C.,OATMEAL
!068
190 CALL CLEAR !200
200 DISPLAY AT(4,3):"CHOOSE:
" !041
210 DISPLAY AT(8,3):"1 NEED
TO KNOW WHAT" :: DISPLAY AT
(9,6):"CAN BE MADE" !174
220 DISPLAY AT(13,3):"2 WAN
T TO SEE A" :: DISPLAY AT(14
,6):"CERTAIN RECIPE" !255
230 DISPLAY AT(18,3):"3 END
PROGRAM" !237
240 CALL KEY(0,KEY,S):: IF K
EY=51 THEN 1210 !109
250 IF KEY=49 THEN 710 !163
260 IF KEY<>50 THEN 240 !132
270 CALL CLEAR :: DISPLAY AT
(3,3):"CHOOSE:" !123
280 DISPLAY AT(5,3):"A BANA
NA CAKE": " B CHERRY CAKE":
" C CHOCOLATE CAKE" !243
290 DISPLAY AT(8,3):"D DEVI
L'S FOOD CAKE": " E GOLD LA
YER CAKE": " F OATMEAL CAKE
" !007
300 DISPLAY AT(11,3):"G RED
VELVET CAKE": " H SAUERKRA
UT CAKE": " I SPICE CAKE" !
131
310 DISPLAY AT(14,3):"J TWO
-EGG CAKE": " K WACKY CAKE"
: " L WHITE CAKE" !053
320 CALL KEY(0,KEY,S):: IF (
KEY<65)+(KEY>76)THEN 320 !11
3
330 CALL CLEAR !200
340 ON KEY-64 GOTO 350,360,3
70,380,390,400,410,420,430,4
40,450,460 !037
350 RESTORE 950 :: GOTO 470
!190
360 RESTORE 960 :: GOTO 470
!200
370 RESTORE 970 :: GOTO 470
!210
380 RESTORE 980 :: GOTO 470
!220
390 RESTORE 990 :: GOTO 470
!230
400 RESTORE 1000 :: GOTO 470
!240
410 RESTORE 1010 :: GOTO 470
!250
420 RESTORE 1020 :: GOTO 470
!004
430 RESTORE 1030 :: GOTO 470
!015
440 RESTORE 1040 :: GOTO 470
!025
450 RESTORE 1050 :: GOTO 470
!035
460 RESTORE 1060 !133
470 READ A$ :: DISPLAY AT(4,
1):A$;" CAKE" !245
480 N=0 :: F=1 !133
490 FOR J=0 TO Z !152
500 READ HB$ :: IF HB$="" OR
HB$="0" THEN 540 !033
510 AMT(N)=VAL(HB$):: INGR$(
N)=INGR$(J)!002
520 DISPLAY AT(6+N,1):USING
"###.##":AMT(N)!052
530 DISPLAY AT(6+N,7):INGR$(
N):: N=N+1 !027
540 NEXT J !224
550 GOSUB 1000 !140
560 DISPLAY AT(23,1):"WANT T
O CONVERT RECIPE?(Y/N)" !239
570 CALL KEY(0,KEY,S):: IF S
<1 THEN 570 !032
580 IF KEY=78 THEN 690 !145
590 IF KEY>89 THEN 570 !220
600 PRINT : "MULTIPLY BY WHAT
NUMBER": "OR DECIMAL FRACTIO
N?" !156
610 ACCEPT AT(23,22)SIZE(6)V
ALIDATE(NUMERIC):F !182
620 IF F<=0 THEN PRINT "SORR
Y, F>0" :: DISPLAY AT(23,22)
:" " :: GOTO 610 !004
630 CALL CLEAR !200
640 IF F>5 THEN PRINT "REMEM
BER, MORE THAN DOUBLING A REC
IPE MAY CAUSE A MESS." :: !
001
650 PRINT F;"TIMES ORIGINAL
RECIPE": " :: PRINT A$;" C
AKE": !001
660 FOR K=0 TO N-1 :: PRINT
USING "###.##":F*AMT(K):: P
RINT " "&INGR$(K):: NEXT K :
: PRINT : !191
670 GOSUB 1000 !140
680 PRINT : "CONVERT AGAIN? (
Y/N)" :: GOTO 570 !006
690 PRINT : "PRESS ANY KEY TO
CONTINUE." !070
700 CALL KEY(0,KEY,S):: IF S
=0 THEN 700 ELSE CALL CLEAR
(See Page 13)

```

REGENA—

(Continued from Page 12)

```

:: GOTO 200 !139
710 CALL CLEAR :: DISPLAY AT
(14,1): "IN THE FOLLOWING LIS
T," !177
720 DISPLAY AT(15,1): "PRESS
""Y"" IF YOU HAVE": "THE INGR
EDIENT." !106
730 DISPLAY AT(17,1): "PRESS
""N"" IF YOU DO NOT." : "PRE
SS ""S"" TO START OVER." !24
7
740 CALL SOUND(150,1397,2)::
YS=0 !167
750 FOR K=0 TO 24 :: PRINT "
_"; B$(K,0) !083
760 CALL KEY(0,KEY,S):: IF K
EY=83 THEN 710 !124
770 IF KEY=78 THEN 790 !246
780 IF KEY=89 THEN YS=YS+1 E
LSE 760 !043
790 CALL HCHAR(23,3,KEY):: B
$(K,1)=CHR$(KEY):: NEXT K !0
81
800 C=0 :: PRINT "YOU CAN M
AKE": : !114
810 IF B$(1,1)="N" OR B$(2,1
)="N" THEN 830 !149
820 IF YS>7 THEN 840 !180
830 PRINT "NOTHING TODAY." : "
YOU NEED MORE SUPPLIES." ::
GOTO 690 !190
840 RESTORE 950 :: READ A$ !
148
850 FOR J=0 TO 24 !110
860 READ H$ :: IF H$="" OR
H$="0" THEN 880 !118
870 IF B$(J,1)="N" THEN 900

```

```

!034
880 NEXT J !224
890 CALL SOUND(150,1397,2)::
PRINT A$; " CAKE" :: C=C+1 !
122
900 READ D$ :: IF D$="ZZZ" T
HEN 930 !033
910 IF LEN(D$)<5 THEN 900 !2
35
920 A$=D$ :: GOTO 850 !177
930 IF C=0 THEN 830 !056
940 PRINT "GO AHEAD AND BAK
E!" :: GOTO 690 !255
950 DATA BANANA,.67,2.5,1.67
,,1,1,1,,1,,.67,2,,,,,
,,0 !029
960 DATA CHERRY,.5,2.25,1.33
,,3,.5,,.25,16,,.5,,4,,
,,,,0 !215
970 DATA CHOCOLATE,.67,2.5,1
.75,,.5,1,,,,,2,,2,1,,
,,1.25,0 !112
980 DATA DEVIL'S FOOD,.67,2.
25,2,,1,1,1,,.1.25,,3,,1,3
,,,,,0 !119
990 DATA GOLD LAYER,.5,2.25,
1.5,,3,1,,,,,1.67,,2,,,,1.
5,,,,,0 !163
1000 DATA OATMEAL,.5,1.5,1,1
,,.5,1,,,,,2,,,,1.75,.25
,,1.25,1 !205
1010 DATA RED VELVET,.5,2.75
,1.5,,.5,1.5,,,,,1,2,,6,,2
,1,,1,,0 !061
1020 DATA SAUERKRAUT,.67,2.2
5,1.25,,1.25,,,,.67,,3,,
,8,1,,,,1.25,0 !180
1030 DATA SPICE,.75,2.25,1,,

```

```

1,1,1,,,,,1,3,,,,,1.5,,,
0 !069
1040 DATA TWO-EGG,.5,2.25,1.
5,,2.5,1,,,,,1,2,,,,,1,,,
,,0 !066
1050 DATA WACKY,.2.5,1.5,,1
,1,,,,,6,1,,1.5,.75,1
.5,0 !034
1060 DATA WHITE,.75,2.25,1.5
,,3,1,,,,,1,,5,,1.5,,,,
,,0 !172
1070 DATA ZZZ !108
1080 DISPLAY AT(23,1): "WANT
A PRINTED COPY? (Y/N)" !035
1090 CALL KEY(0,KEY,S):: IF
KEY=78 THEN 1190 !098
1100 IF KEY<>89 THEN 1090 !2
30
1110 DATA ZZZ !108
1120 REM PRINTING !037
1130 OPEN #1: "RS232.BA=600"
!222
1140 PRINT #1: TAB(5); A$; " CA
KE": : !155
1150 FOR K=0 TO N-1 !073
1160 PRINT #1, USING "###.##
#####": F*AMT(K), I
NCR$(K) !082
1170 NEXT K !225
1180 CLOSE #1 !151
1190 CALL HCHAR(23,3,32,26)!
226
1200 RETURN !136
1210 CALL CLEAR :: END !222

```

Support
our
advertisers

Extended BASIC

Reading numbers properly

By JERRY STERN

©1989 J.L. Stern

Computers are pretty stupid. Our TI 99/4As and Geneves can't even count to twenty properly.

```
FOR L=1 TO 20::CALL SAY(STR$(L))
::NEXT L
```

This loop will make the Speech Synthesizer count to twenty very badly; the numbers past nine will sound like "one zero, one one, one two, one three" and so

on. Whatever happened to "ten?" The Synthesizer's habit of spelling out numbers digit by digit makes any number speaking program awkward, and some educational programs impractical. We need a way of teaching our computers to say numbers correctly.

Many TI programmers have dismissed the Speech Synthesizer as incapable of producing complex speech. The vocabulary available through TI Extended BASIC is

only a few hundred words, and generally not the words you really need. Actually, the Speech Synthesizer can say literally anything, if given a little help. Texas Instruments provided that help in the Terminal Emulator II cartridge. By comparison with Fast-Term or Telco, TE II is a primitive communications program. Its only redeeming feature is the capability to perform text-to-speech conversion, either

(See Page 14)

EXTENDED BASIC

(Continued from Page 13)

by reading aloud incoming data from an information service, or by creating speech from console BASIC. Here is a little program that will say anything you care to type in, but will only work with the TE II cartridge in the computer.

```
100 OPEN #1:"SPEECH",OUTPUT
110 INPUT "SAY WHAT? ":S$
120 IF S$="" THEN 150
130 PRINT #1:S$
140 GOTO 110
150 CLOSE #1
```

The Speech Synthesizer will attempt to pronounce literally anything according to standard rules of English pronunciation. Because the English language has an ancient history of absorbing other cultures, there is an enormous group of English words which do not follow standard rules of pronunciation. The Synthesizer will have no trouble mispronouncing them, but experiment with phonetic spellings to change the pronunciation — that should keep you amused on a rainy evening. Try typing in foreign language sentences — the pronunciation will be hilariously terrible.

But TE II BASIC is not standard to most of our other applications, and so remains mostly a novelty. From Extended BASIC, the Speech Synthesizer has only a limited vocabulary of about 360 words, yet by combining these words, far more complex expressions become possible. A useful procedure would be to create grammatically correct speech from within Extended

BASIC. For now, we'll concentrate on saying numbers.

Using Call SAY to pronounce a number above nine will result in a telephone operator coming "on the line" and saying "one ni-un eight four" when what you probably wanted was "one thousand nine hundred eighty-four." The speech vocabulary does not include "thousand," so we're limited to "nineteen hundred eighty-four." The Synthesizer also cannot say "sixteen" through "nineteen," or understand that "10" means "ten" and not "one zero." However, "teen," "hundred," "point," "negative," "ten" through "fifteen," and "twenty" through "ninety" can be pronounced.

We need a program that will convert numbers to a form that the Speech Synthesizer will be able to say. "1984" will become "nine teen hundred eighty four." "-12.67" will become "negative twelve point six seven." Then these strings, or word groups, can be fed to the Speech Synthesizer through the Call SAY statement for normal pronunciation.

This procedure of building strings is reversed from what is done in adventure programs, where sentences typed in by each player are broken down into lists of commands for the program to check against a list of actions. This analysis is called parsing. The parsing routine of those programs uses input of English sentences, and breaks them down into lists of nouns and verbs. For example, "Drop the stone and take the

key. Then unlock the blue door and take the gold." becomes:

Noun	Adjective	Verb
Drop		stone
Take		key
Unlock	blue	door
Take		gold

By contrast, we need to take a number such as 819.5 and convert it into a sentence fragment, "eight hundred nine teen point five." Instead of breaking down sentence fragments, we will build up number phrases from plain boring numbers.

The most useful format for this procedure will be a subprogram. The use of a subprogram will allow us to add this routine to any Extended BASIC program without the need to check for compatibility. Subprograms are compatible with any main program, as long as the numbered lines of the subprogram are higher than the lines of the program. Duplicated variable names are fine, because Extended BASIC keeps variables for main programs and subprograms separate from each other.

The subprogram will have input of a number, and output will be the spoken number. The subprogram will end without saying anything if the number is outside its range.

Let's begin by writing a test routine for the subprogram.

```
100 DISPLAY AT(2,4)ERASE ALL:"Co
unting on my TI":DISPLAY AT(6,1):"P
RESS ANY KEY FOR NEXT NUMBE
R": "OR THE SPACE BAR TO QUIT
": RANDOMIZE
```

```
110 CALL KEY(0,K,S)::IF S<=0
THEN 110 ELSE IF K=32 THEN 300
200 N=RND*2000-1000::CALL SAYN
UM(N)::GOTO 110
300 STOP
```

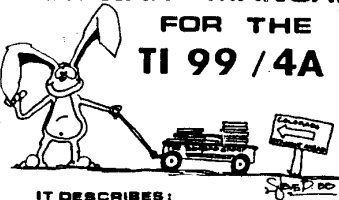
Line 100 sets up an instruction screen. Line 110 waits for a keypress before starting the next number; and line 200 chooses a random number to pronounce, sends the number to the subprogram, and branches back to the input line on completion.

Inside the subprogram, we must first test that the number sent for saying is in the range we've decided to use. The limit will be +/-9999. Any number of greater size would require the word "thousand," which is not easily available.

```
IF X>=10000 OR X<=-10000 THEN
```

(See Page 15)

HARDWARE MANUAL FOR THE TI 99/4A



IT DESCRIBES:

- CONSOLE DESIGN
- CUSTOM CHIP OPERATION
- TMS 9900 H/W ORGANIZATION
- TMS 9900 INSTRUCTION SET
- INTERFACING PITFALLS
- CONSOLE SCHEMATICS
- PES CARD DESCRIPTION
- GROM SIMULATOR DESIGN
- EXTENDED BASIC MODULE DESCRIPTION & SCHEMATICS

Send \$21.95 Check or Money Order To:
(CANADA & FOREIGN SEND \$26.00 U.S. FUNDS)
(VOLUME RATES AVAILABLE...ON REQUEST)

THE BUNYARD GROUP
PO BOX 62323, COLO. SPRINGS,
COLORADO 80962-2323

Magazine holders

Keep organized with plastic holders. Keep your MICROpendiums in three-hole binders for ready reference. Holders are \$3 for 12, enough for 1 year's worth of MICROpendium. To order, send \$3 for each set, plus \$1 shipping to: HOLDERS, P.O. Box 1343, Round Rock, TX 78680.

No. of sets _____ Amount \$ _____
\$3 per set + \$1 shipping

Name _____

Address _____

City _____

ST _____ ZIP _____



CREDIT CARD ORDERS



Circle card used (minimum order \$9)

Number _____

Expiration Date _____

Signature _____

EXTENDED BASIC—

(Continued from Page 14)

SUBEXIT

Next, decide if the number is negative.
IF X<0 THEN CALL SAY("NEGATIVE")

Now, make the negative number positive to simplify the remaining steps.

X = -X

If the number is less than one, say "zero" and go to the decimal pronunciation routine.

At this point the number has been simplified. Negative numbers are no longer a problem. No number above four digits in length is still in the routine. The number is between 1 and 9999, possibly with a few digits past the decimal point. If the number is looked at as "abcd.ffff," then we must break this down to "ab hundred cd point ffff." The number will be pronounced as a pair of two digit numbers, separated by "hundred" and followed by "point" and any decimal portion.

There are two ways to code the next few steps. Since the number will be pronounced as a pair of two digit numbers, the same code could be used to pronounce both of these numbers; or the code could be repeated for each pair. Using the code twice by looping through it saves memory, but requires either that the code be placed in a subroutine or that an extra variable be used to control the loop. This would slow down the execution of the code. The time taken by the programming statements is important; any extra time would add to the length of the pauses between words. If more than one repetition of the code were required, the looping or subroutine techniques would be more practical, but in this case, repeating the code is simpler and faster both in writing and in execution. So, the next steps must be to skip over the first set of two digit speech code if the number is below one hundred, or for the larger numbers, execute the code for the first set, say the word "hundred," and execute the second set.

The duplicated code works by identifying three possible conditions. First, the two digit number could be between one and nine, and so can be pronounced in the Speech Synthesizer's standard way.

CALL SAY(SEG\$(" ONE TWO THREEFOUR FIVE SIX SEVEN EIGHTNINE ", (INT(L*5+1,5))

Alternatively, the number could be in the range ten to nineteen, and will be read out of a long data string.

CALL SAY(SEG\$("TEN ELEVEN TWELVE THIRTEEN FOURTEEN FIFTEEN SIXTEEN SEVENTEEN EIGHTEEN NINETEEN ", (INT(X/10)-2)*10+1,10))

Third, the number could be twenty or above, and will become a combination of "twenty," "thirty," etcetera, and the word for the second single digit of each pair.
CALL SAY(SEG\$("TWENTY THIRTY FORTY FIFTY SIXTY SEVENTY EIGHTY NINETY ", (INT(X/10)-2)*7+1,7))

Finally, if the number has a decimal portion, say "point," and read the digits of the decimal. The subprogram then returns control to the main program.

After testing, the program should be stored without the test routine on lines 100-300. Save the file in merge format.
SAVE DSK1.SAYNUM, MERGE

The subprogram may now be mixed into another Extended BASIC application program. The result will be a useful speech utility that can be added to other projects as needs demand.

Now that our computers can count, maybe we can create some applications that would not have been practical without this subprogram. Maybe a program to create a talking title screen for VCR recordings, complete with broadcast time and channel, would be practical. Using SAYNUM in a project like this one would only require the addition of a title screen and a series of data statements of phrases to say. Oops, now I've gone and done it; maybe we shouldn't let one hobby talk about the other hobbies.

SAYNUM

```
30000 SUB SAYNUM(X) !017
30010 ! PRONOUNCES NUMBER FROM -100000 TO 100000; JLS '89 !199
30020 IF X>=100000 OR X<=-100000 THEN SUBEXIT !126
30030 IF X<0 THEN CALL SAY("NEGATIVE"):: X=-X !218
30040 IF INT(X)=0 THEN CALL SAY("ZERO"):: GOTO 30160 !008
30050 IF X<100 THEN 30120 !1
```

```
41
30060 IF X>1999 THEN 30070 ELSE IF X>999 THEN 30100 ELSE 30080 !252
30070 CALL SAY(SEG$("TWENTY THIRTY FORTY FIFTY SIXTY SEVENTY EIGHTY NINETY ", (INT(X/1000)-2)*7+1,7)) !142
30080 L=INT(X/100):: L=L-INT(L/10)*10:: CALL SAY(SEG$(" ONE TWO THREEFOUR FIVE SIX SEVENEIGHTNINE ", L*5+1,5)) !245
30090 CALL SAY(" HUNDRED"):: GOTO 30110 !159
30100 CALL SAY(SEG$("TEN ELEVEN TWELVE THIRTEEN FOURTEEN FIFTEEN SIXTEEN SEVEN+TEENEIGHT+TEENNINE+TEEN ", (INT(X/100)-10)*10+1,10)), " +HUNDRED")
30110 X=X-INT(X/100)*100 !003
30120 IF X>19 THEN 30130 ELSE IF X>9 THEN 30150 ELSE 30140 !190
30130 CALL SAY(SEG$("TWENTY THIRTY FORTY FIFTY SIXTY SEVENTY EIGHTY NINETY ", (INT(X/10)-2)*7+1,7)) !044
30140 L=INT(X)-INT(X/10)*10:: CALL SAY(SEG$(" ONE TWO THREEFOUR FIVE SIX SEVENEIGHTNINE ", L*5+1,5)):: GOTO 30160 !031
30150 CALL SAY(SEG$("TEN ELEVEN TWELVE THIRTEEN FOURTEEN FIFTEEN SIXTEEN SEVEN+TEENEIGHT+TEENNINE+TEEN ", (INT(X)-10)*10+1,10)) !047
30160 IF X=INT(X) THEN 30170 ELSE CALL SAY("POINT", ,STR$(X-INT(X))) !235
30170 SUBEND !168
```

Form software offered

Asgard Software offers Form Maker 99, by Ed Johnson, at \$19.95 plus 75 cents shipping. The assembly language program is designed to create forms, maps, charts and graphs and include pictures in the text and allows usage of different fonts. It requires TI Extended BASIC or Editor/Assembler, 32K, a disk drive and an Epson compatible printer. Contact Asgard Software, P.O. Box 10306, Rockville, MD 20850.

Trial of a c99 beginner

Modified file I/O program

By CHARLES E. KIRKWOOD JR.

This month I am indebted to Dr. Donald I. Mahler of Newton, Mass., for sending me his modification of the File I/O program which appeared in the April 1988 issue and also some excellent ideas. Dr. Mahler's articles on c99 appear regularly in the newsletter of the TI99/4A section of the Boston Computer Society. He also has a c99 tutorial diskette which can be obtained from the society (see MICROpendium, August 1988, page 44). His modification, along with my additional modifications to make the program more versatile, are included in this month's article.

There are some things that might have been confusing to the new programmer (and even the experienced one). When c99 first came out, some of the function library names contained more than six characters. The variable and function names can contain more than six characters, but they will be truncated when compiled to the first six characters. For example, the function library **STRINGFNS** will be truncated to **STRING** and this will not give an error if the function library is also called **STRING**.

Another example is **FLOAT;C**. This name will not give an error if the actual library name is **FLOAT**;. And there are other names that are too long.

These problems can be taken care of in more than one way. I just made shorter names by leaving off **FNS** and **;C** from all library names that end with **;C**. In running the c99 programs for the articles I used the shortened names. Then, after getting the program to work, tried to remember to use the original name in the article. If I forgot, the experienced c99 programmer would notice the error, make the correction, and go on. But the beginner could be confused.

There is another way that this can be handled. My thanks go to Dr. Mahler for this suggestion in his newsletter article. Leave the function library names as they were originally and use the following:

```
#include "DSK1.STRINGFNS"
```

or

```
#include "dsk1.stringfns"
```

Either upper or lower case characters can be used.

However, since I have already shortened my function library names, I will continue with my shortened names and reminding the reader once in a while.

The input function **scanf()** was used in the modified program where I had used **gets()**. The **gets()** and **getchar()** functions will input only one variable, whereas several can be input with **scanf()** and the input can also be formatted. It is referred to as a formatted input much like **printf()** is a formatted output. The general form is:

```
scanf("control",arg1,arg2,...)
```

You will notice that the arguments are similar to the arguments for **printf()**. However, there are some differences.

First, let us review the function **printf()**. The control string contains conversion specifications and may contain ordinary characters which are copied. Each conversion specification begins with the character **%**.

The conversion characters and their meanings are:

Char.

Meaning

- d The argument is converted to decimal notation (an integer).
- o The argument is converted to unsigned octal notation.
- x The argument is converted to unsigned hexadecimal notation.
- u The argument is converted to unsigned decimal notation.
- c The argument is taken to be a single character.
- s The argument is a string.

There is no conversion for floating-point.

The minimum field width can be specified by including a number between the **%** and the control character. The converted output will be printed in a field at least this wide. For example, the field width of **%4d** is four.

The function **scanf()** provides an input with controls similar to **printf()**, but in the opposite direction. Each variable argument must be a pointer to indicate where the corresponding converted input will be stored. A suppression character ***** may be included between the **%** and the conversion specification which will allow this field to be skipped. Again, a number between the **%** and the conversion character is the field width. In this case, it is the exact field width and the data values do not have to be separated.

For example, if the input were:

```
scanf("%4s %3d %2d",a,&b,&c);
```

and the data were:

```
ABCD56789
```

a would be a character string **ABCD**, **b** would be the integer **567**, and **c** would be the integer **89**. The string **a** is already a pointer and is not preceded by the **&**. (It could also be written as **&a[0]**).

If the field width is not specified, at least one space is required between data items. For example:

```
scanf("%d %c %s %s",&a,&b,c,d);
```

and data:

```
15 E Lark Street
```

would assign the integer **15** to variable **a**, the character **E** to variable **b**, the string **Lark** to variable **c**, and the string **Street** to variable **d**.

Before I forget it, there is a typing error in the function **strlen()** in the April, 1988 c99 article. The statement **++s;** should be **++n;**.

The File I/O Program was also modified to use **printf()** instead of **puts()**. Further modification by me makes it possible to select a segment of the file to be copied, appended, or printed on the printer.

```
/*FILE I/O PROGRAM*/
#include DSK1.STDIO
extern fprintf(),scanf(),printf();
main()
{
    char buff[81],*mode;
    int in,out,col;
```

(See Page 17)

TI BASE

Version 2.0

The Best Just Got Better!

TI Base is unlike any other database system for the TI-99/4a. With its file handling capabilities, extensive command programming language, and unmatched information processing facilities, TI Base is the most flexible data management system available.

Overwhelming File Handling

TI Base supports up to five active databases. Each database can consist of 16129 records, with 17 fields per record, and 255 characters per field. Summed up, that's almost 70 megabytes of information! And using the generic conversion facility included, you can convert your present data files, from another database or TI Writer, for use with TI Base.

Extensive Command Language

TI Base employs a database "engine" that is controlled by a procedural command language similar to the one used by Ashton-Tate in dBASE. It consists of 45 different commands that allows you to access your databases on-the-fly, and create powerful program command files for automatic and complex data processing. You can even produce your own applications!

Unsurpassed Features

TI Base offers database capabilities beyond what most 99/4a users ever imagined possible... and the reviews in various TI publications have been nothing but positive. Some even say that TI Base is quickly becoming the new standard in TI database management.

- Database creation and deletion; adding, editing, deleting, searching, and sorting records.
- Free interchange of data; numerical, character, date, and local variables may be freely interchanged.
- Complete mathematical functions; arithmetic, logical, trigonometric, and Boolean functions.
- Formatted display and printing capabilities; character manipulations, screen scrolling, color changing, and more.
- Structured command language; over 45 different commands, local variable creation, ability to nest command files.
- Disk management functions; catalog and format disks, copy and delete files from within TI Base.
- 40 column file editor to create and edit your own command (program) files from within TI Base.
- Global processing of records using simple commands or complex command (program) files.
- System setup; allows the definition of disk locations, printer configuration, data stamping, and other miscellaneous functions.
- System status bar; "in use" indicators inform the user of the database in use, disk functions being performed, records being accessed, and available dynamic memory.
- Eight level nested sort capability; sort records on multiple fields.
- Detailed 66 page instruction manual with examples.

TI Base is not only powerful, but it is affordable as well. For only \$24.95 (plus \$2.50 for shipping) you get the TI Base system and tutor disks, a keyboard overlay, and a comprehensive 66 page instruction manual. It requires a disk system, 32K, and either an Extended Basic, Editor/Assembler, or Mini Memory cartridge. TI Base is now fully compatible with the Geneve 9640 (in GPL mode).

Upgrade to Version 2.0

Previous TI Base owners may obtain version 2.0 by returning their original disks (both the system and tutor disks) along with a small upgrade fee. If you purchased TI Base after November 1, 1988 send \$2.50 and a copy of your dated sales receipt, otherwise send \$7.95. Don't forget to include your original disks with your upgrade fee. A new and expanded 66 page manual will be sent with your upgrade.

TEXAMENTS

Office: (516)345-2134 53 Center Street, Patchogue, NY 11772 BBS:(516)475-6463

Please add the following shipping charges to your order: \$2.50 for domestic first class delivery, \$8.00 for foreign insured air mail delivery. Orders are usually shipped with a 48 hour period. All C.O.D. orders must be placed by phone. No credit card orders will be accepted. Prices, specifications, and availability are subject to change without notice. Dealer and User Group inquiries are invited. Contact our office for more details and special offers.

c99—

(Continued from Page 16)

```

char m,o[16];
int first,last,line;
int b;
col=80;
printf("FILE I/O PROGRAM by Charles Kirkwood\n\n");
printf("This utility program will copy a file\n");
printf("and also append one file to another.\n");
printf("The INPUT DISK AND FILE is the file\n");
printf("to be copied or appended.\n\n");
printf("Modified by dlm, further modification\n");
printf("by cek to copy or append a segment of\n");
printf("a file.\n\n");
printf("INPUT DISK and FILENAME:: ");
in=fopen(gets(buff),"r");
puts('\n');
/*same as putchar(10);*/
printf("OUTPUT DISK and FILE, OUTPUT MODE (w/a):\n");
scanf("%s %c ",o,&m);
while((m!='w')&(m!='a'))
{
    printf("\nTRY AGAIN, must be lower case 'a' or 'w'\n");
    scanf("%s %c ",o,&m);
}
if(m=='a')
    mode="APPEND.";
else

```

```

    mode="WRITE.";
    printf("\nFile is %s and mode is %s\n",o,mode);
    if(m=='a')
        out=fopen(o,"a");
    else
        out=fopen(o,"w");
    printf("\nline numbers of the FIRST and LAST LINE\n");
    printf("to be copied or appended: ");
    scanf("%d %d",&first,&last);
    first=first-1;
    last=last+1;
    b=fgets(buff,col,in);
    line=1;
    while(b)
    {
        if((line>first)&(line<last))
            fprintf(out,"%s\n",b);
        b=fgets(buff,col,in);
        ++line;
    }
    fclose(out);
    fclose(in);
}

```

This program will work only if you have two disk drives or both files are on the same disk. If you have only one drive and you wish to copy or append a segment of a file from one disk to another, modify the program by saving the segment in a two dimensional array and then change disks. There is a memory limitation to the size of the segment that can be stored in the array. Fifty lines was chosen as the maximum number in this modification. You might experiment to determine the actual maximum. These modifications are outlined below:

```

add:
#include DSK1.STRING

int i,n;
char r[50][81];
add just before printf("INPUT DISK and FILENAME: ");
printf("Insert MASTER disk, then type\n");
delete:
if(m=='a')
    out=fopen(o,"a");
else
    out=fopen(o,"w");
add just after line=1;
i=0;
replace fprintf(out,"%s\n",b); by:
{
    strcpy(&r[i][0],b);
    ++i;
}
delete all after the while(b) block and add:
n=i-1;

```

(See Page 19)

The GRAMULATOR

A gram-simulating device every TI owner should have.

The Gramulator plugs into the cartridge port of the TI-99/4A and simulates a full 64K of GRAM and two 8K banks of RAM at >6000->7FFF. A total of 96K of RAM is built in. You can use the Gramulator:

- To customize the built-in TI operating system in GROM 0 and TI Basic in GROMs 1 and 2.
- To backup your GROM and ROM cartridges to disk to protect your investment and reduce cartridge port wear.
- As a "Super Space" cartridge to run programs needing RAM at >6000->7FFF (including Myarc XBII).
- To customize GROM 0, or 1 and 2, while a cartridge is in the slot. One application is that you can use your own character set with a cartridge like TI-Writer.
- To optionally simulate MBX cartridges.

All cartridge files saved and loaded by the Gramulator are compatible with the Myarc Geneve 9640 and the MG Gram Kracker (except MBX files).

The software to load and save GRAM and GROM is built in for instant access. A Memory Editor is supplied on disk and allows you to alter and save any program loaded into the built in GRAM or RAM. Extensive user documentation and technical information is included.

The Gramulator costs \$190. S&H: \$3 continental US, \$18 overseas. User-installable kit for MBX option: \$15. MBX option installed by CaDD: \$50. If you have any technical questions, please call or write for further information.

CaDD Electronics
 81 Prescott Road, Raymond, NH 03077
 (603) 895-0119

c99—

(Continued from Page 18)

```

fclose(in);
fprintf("\nInsert COPY disk, then press <ENTER>");
getchar();
if(m=='a')
    out=fopen(o,"a");
else
    out=fopen(o,"w");
for(i=0;i<=n;++i)
    fprintf(out,"%s\n",&r[i][0]);
fclose(out);

```

Don't forget to also load SCANF when you load your object program, CSUP, CFIO, PRINTF, and FPRINTF.

Have you ever printed out documentation for some program received in order to put it in a notebook? After punching out the holes you find that some important information has been punched out. Rather than moving the paper guides on the printer, you can leave a left margin by changing the "control" in the @fprintf statement to:

```

"    %s\n"

```

Adjust your margin by changing the number of blanks. When the program calls for OUTPUT DISK and FILE, OUTPUT MODE (w/a):, type **PIO w**. If adding this left margin makes the line greater than 80 characters (counting the margin), the printout will spill over to the first column on the following line.

MORE ON CALENDAR PROGRAM

I want to say a little bit more about the calendar program written in FORTRAN, XBASIC and c99 in the c99 articles in May and June. The programs were based upon using two integer arithmetic FORTRAN single-statement functions which contained most of the arithmetic. The fact that so much arithmetic was done by a single statement was very interesting to me.

Extended BASIC is essentially a floating-point language and c99 is an integer language. The purpose of these programs was to bring out how the arithmetic of the two functions might be handled by XBASIC and c99. The XBASIC program handled the formulas almost as they were written, but with c99 the formula used in the calculation of the number of days in a month became more involved because floating-point functions were used since the size of integers in c99 is limited to 2 bytes and floating-point uses 4 bytes. This was a good place to introduce the floating-point functions.

The number of days in a month can be determined (not calculated) by much simpler methods. Here are some changes that will result in some simplification of the program. Delete the following from the main program:

```

#include DSK1.FLOAT;C
float d[8],e[8],de[8];
a=y+i/12;
b=(i+1)*13+i/12;
/*remainder of (i+1)/13 added to i/12*/
jd(a,b,d);
jd(y,i,e);
fexp(d,"",e,de); /*de=d-e*/
qm=ftoi(de); /*convert from real to integer*/

```

Insert between putchar(10); and /*qm is the number of days in a month*/:

```

qm=jd(i,y);

```

Change the declaration from:

```

int a,b,f,qm,qf,qe,qq;

```

to

```

int f,qm,qf,qe,qq;

```

Three methods are given to determine the number of days in a month. Substitute one of the three functions **jd(m,y)** for the function **jd(i,j,k)** in the program.

```

/*FIRST METHOD*/
jd(m,y)
int m,y;
{
    int d;
    if(m==2)
    {
        if(((y%4==0)&(y%100!=0))||(y%400==0))
            d=29;
        else
            d=28;
    }
    else if(((m==4)||(m==6)||(m==9)||(m==11))
        d=30;
    else
        d=31;
    return(d);
}

```

```

/*SECOND METHOD*/
jd(m,y)
int m,y;
{
    int mo[13];
    int d;
    mo[1]=31;
    mo[2]=28;
    mo[3]=31;
    mo[4]=30;
    mo[5]=31;
    mo[6]=30;
    mo[7]=31;
    mo[8]=31;
    mo[9]=30;
    mo[10]=31;
    mo[11]=30;
    mo[12]=31;
    d=mo[m];
    if(m==2)
    {
        if(((y%4==0)&(y%100!=0))||(y%400==0))
            d=d+1;
    }
    return(d);
}

```

The third method initializes the array **mo** at compile time. Before **main()** insert the statement:

(See Page 24

TEX+COMP FREEWARE DISKS

Public Domain and Shareware Programs
Are Available from our Library, and Priced at

**EXCITING NEW WAYS
TO USE YOUR TI-99/4A COMPUTER**

Only
\$4⁹⁵
each

ORDERS SHIPPED OUT SAME OR NEXT DAY

GAMES

GREAT 99/4A GAMES VOL 1 (38) A collection of the very best. Professional quality.
GREAT 99/4A GAMES VOL 2 (39) Continuation of VOL 1 with more great action & graphics.
BEST OF BRITAIN VOL 1 (44) A collection of the best U.K. has to offer.
BEST OF BRITAIN VOL 2 (45) "Legend of Carfax Abby" an all graphics adventure.
GHOSTMAN (48) The fastest Pacman type game ever!
DEMON DESTROYER (49) Starts where Invaders leaves off.
OH MUMMY!! (50) Search the tomb for treasure while being chased by mummies.
BERLIN WALL (51) Escape from E. Berlin and avoid mines.
FREDDY (60) Great action and graphics. Escape from an underground cavern. Great!!
THE NINE (61) Fast action and great graphics. Hours of excitement with this one!
TI RUNNER II (70) An all new upgrade of one of the best!
CHESS (66) The famous game Zargon. Loads from exbasic.
CHECKERS & BACKGAMMON (33) A collection of the best.
SOLITAIRE & SCRABBLE (34) A classic game collection!
WHEEL OF FORTUNE, BLACKJACK & JOKER POKER (2) Three of the best we have seen. So good you will expect Vana to appear!
STRIP POKER (13) When you win she loses everything!
ASTROBLITZ/MAZOG (63) Two professional quality action games you are sure to like!
MAJOR TOM/SPACE STATION PHETA (64) Two great space games!
PERFECT PUSH (65) One of the finest games ever written. Fantastic action and top notch graphics. Space game!
SUPER TRIVIA 99 (46) The best trivia games we have seen. Complete with questions!
R RATED GAME DEMO (26) The classic Space Invaders with "unusual" guns & targets. For Adults Only!
TI-99 OLOPY' (12) Now you can play the famous board game right on your 99/4A. Do not pass GO!!!

EDUCATION

KIDS LEARNING VOL 1. (27) A 2-disk side collection of educational programs. Math, geography, reading and more.
MORSE CODE TRAINER (31) A professional program to learn and practice code.
ASTRONOMY (54) Plots the heavens and teaches you about the solar system.
KIDS LEARNING VOL 2. (71) Still more great learning programs. We only included the very best!

MUSIC

THE SINGING TI-99/4A (1) A 2 sided collection of songs where the computer actually sings. By Ken Gilliland. Requires speech syn.
TI MUSIC/GRAPHICS DEMO (5A) A great collection of music & matching graphics.
EXBASIC MUSIC DEMO (6) A 2-sided collection of great music with graphics. Hours of enjoyment!
COMPUTER PLAYER PIANO/CHORD ANALYSIS (69) A piano on the screen plays your selections or write your own with instructions incl.
Also a program to learn keyboard chord formation.
EXBASIC XMAS MUSIC (32) A 2-disk side collection of christmas and holiday music. Completely menu selectable!

SPREADSHEETS

SPREADSHEET DEMO (56) A complete spreadsheet program for learning and many applications. Easy to learn and use!

ACCOUNTING AND FINANCE

ACCOUNTS RECEIVABLE (20) A complete AR program with documentation. Won 1st prize in TI programming contest.

STRICTLY BUSINESS (36) A 2-disk side collection of programs for evaluating loans, interest, stocks etc.

DATABASE PROGRAMS

DATA BASE DEMO (21) A fully set up data base program designed for filing and finding magazine articles. Easy to use or modify for other applications. Sample data included!
PR BASE (58) This is a full feature DB freeware program that is rated as one of if not the best. Documentation included!

GRAPHICS

ANIMATION 99' (52) This is the one by Ray Kazmer that was featured in the July 88 Micropendium. See fantastic animation and also learn how it was done. This one is destined to be a classic.
ANIMATED XMAS CARD (11) This is the original animation by Ray Kazmer that made him an overnight superstar in the TI community. This classic is also referred to as "Woodstock" among TI'ers.
PRINTART DEMO (4) This 2-disk side collection prints well known comic and TV personalities out on your printer.
FIGURE STUDY (14) This is a collection of programs that print Playboy type center-folds out on your printer.
MONA LISA PRINTOUT (9) This program prints a near photo quality picture of Mona Lisa on your printer. You won't believe the quality!
SPACE SHUTTLE DEMO (7) An outstanding music/graphics program that salutes the U.S. space program. Its almost like watching a film.
STAR/BPSON DEMO (15) A 2-Disk side collection of programs to show you what your printer can really do. Also a great graphics tutorial with examples!

GOTHIC PRINT DISK (10) This program lets you type a message and then prints it out in Old English style. Looks like hand lettered calligraphy. Great for invitations, announcements.
SIDEWAYS PRINTOUT (16) Lets your printer print sideways. Great for spreadsheets and banners. Includes two versions and new Multiplan enhancements.
VIDEO GRAPHS (41) This disk is sold as a backup to owners of the discontinued TI Video Graphs module. We can only legally provide it to module owners.

TELECOMMUNICATIONS

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

APPLICATIONS

WILL WRITER (23) Enter your answers to a group of questions and this program writes out a complete will.
MEDICAL ALERT (25) Contains many menu accessible files on what to do until the doctor or paramedics come. Could easily save a life!
ENGINEERING CALCULATIONS (2) A 2-disk side collection dozens of engineering and technical formulas. Does calculations, conversions, and even designs electric circuits. Even contains medical and communication data and formulas.
LABEL MAKER (29) A pair of programs that let you make quick and easy labels for all purposes. Mail, disk files etc. Uses standard tractor labels and even makes a graphic picture with the label text.
INFOCOM RAPID LOADER (47) A must for owners of Infocom 99/4A games. Loads games in seconds instead of minutes. Easy to use!
GENEALOGY (67) Now you can enter and arrange your family tree and print out copies for your relations. Also can be used if you breed animals such as dogs, cats or horses.
GRAPH MAKER (59) A collection of the best programs we have seen that produce graphs and charts from your data. Printer required!
HOUSEHOLD BUDGET PRINTOUT (1) This program lets you printout the data from the TI Household Budget module an important feature that TI forgot.

Now get more out of your TI Computer—for less.

FREEWARE ONLY \$4⁹⁵ each

• Public Domain and Shareware Programs and Utilities to meet all your Computing Needs.

SPREADSHEETS

GAMES

UTILITIES

GRAPHICS

ACCOUNTING
AND FINANCE

SECURITY/HACKING

DATABASE
PROGRAMS

APPLICATIONS

BASIC

APPLICATIONS

(continued)

HEBREW TYPEWRITER (66) This program converts your 99/4A from english to hebrew. A great tool for religious studies. Can be combined with a screen dump program to print out the text from the screen. A great way to learn how to do the same with other languages. To get you in the mood, we also included a music/graphics program of "Fiddler" on this disk!

ARTIFICIAL INTELLIGENCE (40) This disk includes the famous computer program "Eliza" where the computer responds to your problems and questions in a manner that is almost human. Save a bundle on what you would pay a shrink for the same services. Also includes one of the better biorhythm programs so you can really take control of your emotional problems at one sitting.

LOTTO SELECTOR (8) This program selects numbers for use in the various state lotto games and even runs a simulated lotto game. Unprotected so it is easily modified for additional games.

ASTROLOGY (22) This program is as good as the coin operated machines. Tell it your birthday and see a great color display on your zodiac sign and see historical data on what took place in history on your birthday. Great for parties or even a charity event. Many famous people rely on this information!



TI PROGRAMS FROM AROUND THE WORLD

LAPD COOKBOOK (37) A complete computer collection of great recipes compiled by an LA cop who is also a gourmet chef. Whenever he went to a top eating place he would hit the chef up for a recipe. 2 disk sides completely menu selectable.

ORIGINAL TI SALES DEMO (5) This disk given to TI dealers by TI back in 1980, includes demonstration program with graphics, speech, PRK, TR-I, and even includes the famous game TI-TREK which we reprogrammed to run on the TR-II module instead of the discontinued Speech Editor.

UTILITIES

HACKER CRACKER (53) A collection of the top disk copy programs including the best of the track copiers. One or more of these programs will copy almost all protected disks. Both TI & CorComp compatible programs are included. 2 disk drives are required on most of these programs.

SCREEN DUMP (55) This program allows you to printout what you see on the screen while running a disk, cassette or module program. Instructions included. Requires a Star or Epson compatible printer.

DUMPIIT (3) This disk lets you copy a number of TI modules to disk. Editor Assembler module and Vidget (cartridge expander) recommended for best results. Some programming knowledge will be helpful!

TI DIAGNOSTICS (19) This program released by TI loads into the TI Mini Memory module and then lets you test your system. Better than diagnostics on a disk since if your disk system was not working properly, you would not be able to use it. Complete with all documentation on a second disk side.

DISK MANAGER II (62) This is the TI Disk Manager II module on disk. Now if your module goes, you are protected. Sold as a backup to owners of the module. Loads with exbasic.

LOADERS & CATALOGERS (28) A collection of the best catalog and menu/loader programs we have seen. Ready to be put on your own program disks.

PROGRAMMING AIDS & UTILITIES (35) This disk contains a collection of handy files including a group of title displays and a super cross reference program. Also included is a great disk management utility that you will use over and over!

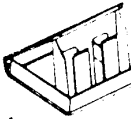
TI WRITER/MULTIPLAN UPGRADE (19) This disk released by TI adds real lower case to your TI writer and more. Also speeds up Multiplan.

TI FORTH DEMO (17) This disk released by TI demonstrates the power of the programming language Forth for music and graphics. Requires 32K and Editor Assembler Module.

FUNNELWEB FARM UTILITY (42) This program from down under puts many of the most often used application and utility programs at your fingertips. Complete with documentation on two disk sides.

BONUS

FREE DELUXE DISK STORAGE
CASE WITH EACH ORDER OF
FOUR OR MORE DEMO DISKS!!



A NOTE ABOUT DEMO DISKS: TEX-COMP's demo disks are a collection of disks containing unique and entertaining features which we believe will help you get more out of your TI-99/4A. Some if not all of them are in the public domain. However, in certain cases, the author requests a contribution if you use and enjoy it. While you are not legally obligated to do so, we at TEX-COMP encourage your assisting these talented programmers if you enjoy their work. That is why we offer these disks at such a low price.

DISK OF THE MONTH: HOUSEHOLD INVENTORY

BY CHARLES EHNINGER

THIS PROGRAM ORIGINALLY MARKED BY FUTURA SOFTWARE AT \$59.95, WON FIRST PRIZE IN THE TEXAS INSTRUMENTS PROGRAMMING INCENTIVE PROGRAM. THE PROGRAM ALLOWS YOU TO LIST EVERYTHING IN YOUR HOME, OFFICE OR EVEN A COLLECTION SUCH AS STAMPS, DOLLS, TRAINS ETC. THE UNIQUE FEATURE OF THIS PROGRAM IS THAT YOU CAN UPDATE THE VALUE OF EACH ITEM AT ONE TIME TO REFLECT A CHANGE IN VALUE. THIS IS A MUST FOR INSURANCE AND TAX RECORDS. YOU CAN ALSO TIE THE VALUE OF YOUR INVENTORIED ITEMS TO A PUBLISHED INDEX. THE PROGRAM ALLOWS ENTRY OF ITEM NUMBER, PURCHASE DATE, BRAND NAME, SERIAL NUMBER, DESCRIPTION, ORIGINAL PRICE AND CURRENT VALUE. LIKE ALL OUR FREEWARE DISKS IT COMES WITH FULL DOCUMENTATION. REQUIRES EXBASIC, 32K MEMORY UPGRADE AND AT LEAST ONE DISK DRIVE. DISK #92.....

Send order and make checks payable to:

TEX-COMP

PO Box 33064, Granada Hills, CA 91344



AUTHORIZED DEALER

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

24 Hour Order Line

TERMS: All prices FOB Los Angeles. For fastest service use cashiers check or money order. Add 3% shipping and handling (\$3.00 minimum). East of Mississippi 4 1/2%. Add 3% for credit card orders. Prices and availability subject to change without notice. We reserve the right to limit quantities.

NOTE: Payment in full must accompany all orders—credit card, company check or money order for immediate shipment. Personal checks require up to 4 weeks to clear. California orders add 6 1/2% sales tax.

TEX+COMP™ ONLY \$4.95 Per Disk

America's Number One TI computer retailer

FREEWARE™



BONUS

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



FREE DELUXE DISK STORAGE
CASE WITH EACH ORDER OF
FOUR OR MORE DISKS!!!

Programs and Utilities to meet all your Computing Needs.

#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.

#74. LABEL MAKER II

Make labels for holidays and special events. You compose the text and select the resident graphics for the occasion.

#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.

#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 MAX-RIE (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 into 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.

#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 run 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. COLUMNIZER III

A very useful utility for printing TI Writer and 99 Writer II files in separate spaced columns. Saves hours in producing a newsletters. 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"

Based on the legendary 99/4A maze game by Tesio Riccardo, Ray Kazmer has taken this great game and converted it to enhanced extended basic and added the characters from his now famous "Woodstock" program with the the Grog thrown in. Great game, graphics, animation and fun for all!

Send order and make checks payable to:

TEX+COMP

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

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



TEXAS INSTRUMENTS



24 Hour Order Line

(818) 366-6631

NOTE: Payment in full must accompany all orders. Credit card, Company check or Money order for immediate shipment. Personal Checks require up to 4 weeks to clear. Mailed orders add 5% sales tax.

TEX+COMP

PRESENTS:

UNBELIEVABLE PRICES ON

THE NEW & EXCITING DataBioTics CARTRIDGES

NEW! SORGAN II ... \$16.95



That old organ grinder is back from the future! Rolling notes and catchy tunes are there at your command. *Sorgan II* turns your TI-99/4A into one of the hottest music properties around. As you touch the console's keys, *Sorgan II* displays the music played as colorful stairsteps running up a mountain on this bit-mapped display of a piano keyboard. Notes, chord formations and active octaves are there for your musical adventuring.

you're collecting **JUNKMAN JR. . . \$16.95** pollution for transport to an outer space junkyard in an attempt to save Earth from extinction. But you must listen for tiny barks—the only warning that mean and vicious micro-dogs give before they attack. Only your agility will save you!

Entertains with lively music, spritely action, imaginative graphics and sound. (Joysticks recommended.)

TI PLANNER . . . \$24.95

Constructing your own tables and charts for home, business or school is now a snap using *TI Planner* and its 11 simple commands. Expand your spreadsheet from 86+ to 2520 cells with a 32K Memory Expansion (see pages 3 or 4). Load and save your record to cassette or disk, or get a hard copy on a printer if you have one. Written in 100% assembly language for utility and speed. From DataBioTics.

BARRAGE . . \$16.95

commander of the Missile Center, your mission is to subvert their plans using awesome laser firepower. Twin laser cannons are at your disposal to destroy the raining acid balls.

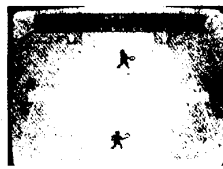
DRAGONFLYER

you're more than a match for attacking insects. But you must navigate carefully to avoid crashing. Developed by softmachine the same people who brought you classics like *Manchurian* and *Car Wars*.

STAR RUNNER . . . \$16.95

Your mission—recover the stolen booty stored on all 25 decks of the starship, one deck at a time. Your only weapons are blinding speed and your blaster. You must guide your runner up ladders and along decks while dodging crewmen, blasting your way to safety and through vaults to gather treasure. (Joysticks recommended.)

NEW! MICRO-TENNIS . \$16.95



Experience all the excitement, action and thrills of a professional tennis match, right on your TI-99/4A. Hit your back-hand cross-court or down the line, charge the net or stay back on the baseline. Play against a friend or against the computer. The choice is yours. Features incredible dimensional perspective for realism, court color selection, three levels of play, automatic scorekeeping and realistic sound effects. From DataBioTics. (Requires Joysticks.)

NEW! BEYOND PARSEC

you're teleported into another galaxy. *Beyond Parsec*. Suddenly you're face-to-face with the most dangerous enemy you've ever encountered—a spacecraft as deadly and as fast as yours.

Beyond Parsec challenges you to outsmart and outmaneuver your opponent in this two-player game, challenging sequel to the best-selling game ever produced for the TI-99/4A. Designed by John Phillips. (Joysticks recommended.)

SPY'S DEMISE \$16.95

You must move from level to level as fast as you can. But that's only part of this fast paced strategy game—at each of the 11 floors part of a secret message is revealed. It takes a professional code breaker to discover the cryptogram and break the code. Don't pass up this great program from CSI.

MICRO-PINBALL \$16.95

You'll have to experience this flawless simulation to believe it! You control the "flippers" and launch balls. Sit back and enjoy the flashing lights and ringing bells as your pinball collides with obstacles and ricochets off posts in a kaleidoscope of colors. Be alert or you'll miss the chance to flip the ball back up the alley and pronounce yourself a Pinball Wizard!

MIDNIGHT, MASON . . \$16.95 what's this? Some very hungry varmints intend on keeping you from finishing your shift. Climb, run, build and break through walls on this merry chase as you try to collect your tools before the ghosts collect you. (Joysticks recommended.)

TI TOAD . . \$16.95

quickly hop to safety before your pebbly skin cracks and peels from the intense heat. Watch out for speeding cars as you cross the highway. Then jump from log to log as you cross the creek. At last, you've reached the hot tubs. Better pick an empty one. (Joysticks recommended.)

NEW!

RED BARON FLIGHT SIMULATOR . . \$24.95

At last, a cartridge-based flight simulator with full 3-D perspective and aerobatic control. Experience the thrill of taking your World War I Spad XIII fighter into a real aerial dogfight.

Select your flight plan, check your controls, ease back on the stick and watch the rolling French countryside drop away. Shoot down observation balloons, bomb the enemy's airfield, fly to Paris. But keep your eye out for enemy aircraft.

This 32K module features continuous instrument readouts, 360-degree view of the world, colorful graphics, realistic sounds and more. (Joysticks recommended.)

Cartridge-Based DESKTOP PUBLISHING . . \$39.95

Now, Desktop Publishing requires only your console and a printer. Compose greeting cards, letters with graphics, impressive school reports, striking invitations and more... even if you can't draw a line!

Desktop Publisher includes a word processor that creates beautiful fonts and a picture editor that lets you select from the pictures included, or draw your own. It's easy to use and the results are stunning!

With *Desktop Publisher*, you've written your last blah letter. Pick a type font to match your mood and a picture to emphasize your point. Doodle with line art to customize your signature. The possibilities are limitless.

Your console, interface and Epson-compatible printer are all you need to publish your own invitations or newsletter. Start your own publishing business today by ordering the *Desktop Publisher* by DataBioTics. (Cassette System recommended.)

NEW! STAR TRAP . \$16.95

Your small band of rebels is the last hope to restore order to the galaxy. Your task is to create a frontal diversion while the rest of your allies converge on a massive rear strike. Defend your ship against laser cannons, drone space vessels and drone superior battle cruiser in this 3-D vector action game. Line up your crosshairs and fire away! Designed by John Phillips.

WORDWRITER XTRA . \$29.95

Wordwriter Xtra is an extraordinary new cartridge that turns your TI-99/4A into a powerful word processor. It picks up right where *Wordwriter*, the popular TI word processor left off.

New features allow you to command your printer to underline, boldface selected words and more, just by typing simple keyboard commands.

Of course, you can still create mounds of text, up to 12,286 characters (36,782 with memory expansion); insert and delete characters, lines or paragraphs easily and let word wrap shape your text. You can also display line number and reformat your work to neat margins whenever you want, search and easily find key words or phrases or set left and right margins and tabs from the keyboard.

Wordwriter Xtra allows you to load and save from disk or cassette, as well as print a hard copy. (Requires RS232 Interface and printer cable or PIO Plus Interface and Printer.)

BLACKHOLE . . \$16.95

Blackhole pits one or two players against an empire of extraterrestrial vehicles and the dreaded blackhole. Survival depends on your skill and co-pilot coordination.



PRO-TYPER \$19.95

The Touch Typing Tutor Ever wish you could type like a pro without the hassle of learning? This new cartridge from DataBioTics proves that you can be a "touch typist" at home and have fun, too!

Easy-to-handle steps make you comfortable with each part of the keyboard.



SEND ORDER AND MAKE CHECKS PAYABLE TO

TEX+COMP
P.O. BOX 33084
GRANADA HILLS, CA 91344

AUTHORIZED DEALER



VISA and MASTERCARD
HOLDERS CALL DIRECT

(818) 366-6631

24-Hour Order Line

TERMS: All prices FOB Los Angeles. For fastest service use cashiers check or money order. Add 3% shipping and handling (\$3.00 Minimum). East of Mississippi 4 1/2%. Add 3% for credit card orders. Prices and availability subject to change without notice. We reserve the right to limit quantities.

NOTE: Payment in full must accompany all orders—credit card, company check or money order for immediate shipment. Personal checks require up to 4 weeks to clear. California orders add 6 1/2% sales tax.

c99—

(Continued from Page 19)

int mo[13]={0,31,28,31,30,31,30,31,31,30,31,30,31};

and rewrite the function jd() as:

/*THIRD METHOD*/

jd(n,y)

int n,y;

{

int d;

d=mo[n];

if(n==2)

{

if(((y%4==0)&(y%100!=0))||(y%400==0))

d=d+1;

}

return(d);

}

For those who have had trouble loading c99 v4.0 equipped with a Horizon RAMdisk, Clint Pulley offered a suggestion in TI Forum, October 1988 Computer Shopper. Locate the first sector of C99C with a sector editor. At byte offset 7C (hex) is 0420 2120 0010. Replace 0420 with 1002. Make this change on a copy, do not attempt to make the change on the original disk.



TI-TAX TI-TAX™ TI-TAX

GREAT FEATURES ! NEW PRICES ! DO YOUR OWN TAXES AT HOME GENERATE IRS APPROVED FORMS USE YOUR TI-99:4A OR GENEVE

These EASY-TO-USE, HI-QUALITY, CROSS-LINKED templates:

- Generate and print IRS useable Forms and Schedules
- Can be used in lieu of IRS preprinted forms (Except forms requiring signature -- now will overprint IRS Form 1040)
- Has grown each year since 1983; INCLUDES TAX LAW CHANGES
- Can link to your other Multiplan(tm) records
- Are not copy protected. (Ask about "Fairware" rebates!)
- Are great for "What if...?"ing.
- Do most of your calculations

MAKE CHECKS TO:
William G Chavanne
4549 English Ave
Ft Meade, MD 20755

Select from these 6 disks to suit your need:

ADD \$5 SHIPPING AND HANDLING

SHORTFORMS -- \$20

FORM1040p1 US Individual Income Tax Return (Short Form, page 1)
FORM1040p2 (Short Form, page 2)
FORM1040E1 Income Tax Return For Single Filers with no Dependents
SCHEDULE1p1 Interest, Dividends, Child & Dependent Care (Page 1)
SCHEDULE1p2 (Page 2)
PRINT17 (Printer set-up routine)
REBATES (Form to register for rebates)
FLOWCHART (Hints for effective order of processing)
USER MANUAL (Easy reading, covers Short forms)

SCHEDULES ---- \$15

SCHEDULEA Itemized Deductions
SCHEDULEB Interest and Dividend Income
SCHEDULEC Profit or (Loss) from Business or Profession
SCHEDULEDp1 Capital Gains and Losses (Page 1)
SCHEDULEDp2 (Page 2)
SCHEDULEEp1 Supplemental Income Schedule (Page 2)
SCHEDULEEp2 (Page 2)

MOREFORMS1 -- \$15

FORM1040X Amended U.S. Individual Income Tax Return
FORM2119 Sale or Exchange of Principal Residence
FORM4952 Investment Interest Expense Deduction
FORM4972p1 Tax on Lump-Sum Distributions (Page 1)
FORM4972p2 (Page 2)
FORM615 Tax for Children Under Age 14 with Income Over \$1000
SCHEDULER Credit for the Elderly or the Disabled
SCHEDULESE Computation of Social Security Self-Employment Tax

LONGFORM ---- \$10

FORM1040p1 US Individual Income Tax Return (Page 1)
FORM1040p2 (Page 2)
(Incl Schedules x,y,z)
FLOWCHART (Hints for effective order of processing)
INITIAL (File for common data, avoids repeat entries)
PRINT17 (Printer set-up routine)
REBATES (Form to register for rebates)
USER MANUAL (Easy reading, covers ALL TI-Tax forms)

USUALFORMS -- \$15

FORM2106p1 Employee Business Expenses (Page 1)
FORM2106p2 (Page 2)
FORM2441 Credit for Child and Dependent Care Expenses
FORM3903 Moving Expenses
FORM4251 Alternative Minimum Tax -- Individuals
FORM606 IRA Contributions, IRA Basis, and Distributions
FORM44 worksheet Employee Withholding Allowance Certificate

MOREFORMS2 -- \$15

FORM2210 Underpayment of Estimated Tax
FORM4562p1 Depreciation and Amortization (Page 1)
FORM4562p2 (Page 2)
OTHERS (Late additions, if any)

Write for output samples !

Support TI hardware & software developers



I'LL SELL YOU THE SHIRT OFF MY BACK!

TEX COMP TAKES PRIDE IN ANNOUNCING ITS 10th ANNIVERSARY LIMITED EDITION T-SHIRT. THIS HIGH QUALITY SHIRT WITH BEAUTIFUL SIX COLOR SCREENED GRAPHICS WAS ORIGINALLY CREATED AS A HOLIDAY GIFT FOR OUR STAFF AND SUPPLIERS. AS SOON AS OUR LOCAL CUSTOMERS SAW THE SAMPLE IN OUR STORE, THEY PLEADED WITH US TO SELL THEM ONE. WE WENT BACK TO THE TEXAS FIRM WHO CUSTOM PRODUCED THE SHIRT FOR US AND HAD THE RUN INCREASED TO ACCOMMODATE OUR CUSTOMERS AROUND THE WORLD. THE FULL COLOR ILLUSTRATION ON THE SHIRT WAS CREATED BY CIRO VARGAS, A TALENTED ILLUSTRATOR WHO ACTUALLY USES THE 99/4A AND GRAPHX IN HIS WORK. THE SHIRT IS BEING SOLD AT OUR ACTUAL COST (6 color printing and quality shirts don't come cheap). IN ADDITION, FOR EVERY SHIRT SOLD, WE ARE DONATING ONE DOLLAR TO THE SPECIAL AWARENESS COMPUTER CENTER FOR THE HANDICAPPED AND LEARNING DISABLED IN THE NAME OF GEORGE STEFFEN, A TALENTED TI PROGRAMMER AND FRIEND OF TEX-COMP WHO PASSED AWAY LAST SEPTEMBER.

THE T-SHIRTS ARE PRICED AT \$9.95 WHEN ORDERED WITH ANY OTHER ITEM FROM TEX-COMP OR \$12.95 ALONE WHICH INCLUDES SHIPPING (U.S. & Can.) THE SHIRTS ARE AVAILABLE IN LARGE AND EXTRA LARGE ONLY (SPECIFY WITH ORDER!). WE ALSO HAVE A VERY LIMITED NUMBER OF HEAVY DUTY SWEAT SHIRTS IN EXTRA LARGE ONLY AT \$19.95 +s&h.

Send order and make checks payable to

TEX+COMP

America's Number One TI computer retailer

P.O. Box 33084, Granada Hills, CA 91344

TERMS: All prices FOB Los Angeles. For fastest service use cashiers check or money order. Add 3% shipping and handling (\$3.00 Minimum). East of Mississippi 4 1/2%. Add 3% for credit card orders. Prices and availability subject to change without notice. We reserve the right to limit quantities.



(818) 366-6631

Visa & Mastercard Holders

Call Direct 24-Hour Order Line

NOTE: Payment in full must accompany all orders—credit card, company check or money order for immediate shipment. Personal checks require up to 4 weeks to clear. California orders add 6 1/2% sales tax.

Hardware project

Making Super Extended BASIC work with the Widget cartridge expander

By JOHN GUION

Artwork by MIKE STANFILL

AUTHOR'S NOTE: The modification described in this article should be attempted only by individuals with experience in soldering on printed circuit boards. The Super Extended BASIC module also contains static-sensitive components. To help guard against static damage, a sheet of aluminum foil may be used as a workspace. The author can assume no responsibility for misuse of this material.

I purchased Super Extended BASIC (SEB) from Triton after reading several good reviews of the product. After putting a lot of miles on it, I would not trade it for any other module.

Even non-programmers have found that its additional cursor control routines, built-in functions (like the catalog) and other features make it an extremely useful tool. Since it's 100 percent compatible with TI Extended BASIC, it also avoids the compatibility problems of some of the other enhanced versions of Extended BASIC.

Several users have also discovered that, unfortunately, the module will not disable itself when used on the popular Widget Cartridge Expander. This has also been a problem for folks who have installed it inside the console and then found that it would not turn off like a regular TI Extended BASIC module. This problem occurs because the Widget and the XBASIC-in-console modification assume that the module is enabled and disabled like a regular GROM/ROM module.

Unlike a regular GROM/ROM module, SEB is a GROM emulator module. This is required to add the new commands of SEB. GROM emulators do not require a negative 5 volt supply like regular GROMs, so the GROM memory area cannot be disabled by turning off the negative 5 volt supply (which is how a Widget works). Since the GROM emulator can be turned off by forcing its chip select signal to +5 volts like ROM memory can, a method to add that kind of switching must be used and it must be controlled by the negative 5 volt supply

line that the Widget switches.

A technician friend of mine, John Creviston, suggested that I balance a control signal between the switched negative 5 volt supply and the unswitched positive 5 volt supply using a pair of equal-value resistors. I OR-gated this new signal with the EPROM chip select signal in the SEB module. Now, when the Widget turns off the negative 5 volt supply, the EPROM in the module is also disabled, thus turning off SEB completely and allowing other modules on the Widget to operate.

PARTS NEEDED

To make the change, you will need one 74LS32 quad OR gate chip, two 2.7K- $\frac{1}{4}$ watt resistors (the color code is red-violet-red-gold), and about eight inches of thin wire (30 gauge wire-wrap wire works great). The resistors and wire are available from Radio Shack, and the 74LS32 should be available at any electronic store carrying computer components. The total cost should be under \$1 for parts. You will also need soldering equipment, a medium-sized flatblade screwdriver and a hobby knife that will be used to cut one circuit trace.

Begin by opening the module case and removing the board. To do this, turn the module upside-down and insert the screwdriver tip into one of the outer slots near the corner of the case. Gently pry the tab outward as you use your fingers to pull the two halves of the case apart. Once this corner is freed, repeat the procedure with the tab on the other corner. When both corners are released, use the screwdriver to push the tab located near the center of the case toward the label. Once this is freed, the module will open up and the circuit board may be lifted out.

Lay the board on the foil with the components downward and the plug connector facing you. The connector is numbered from left to right with the odd-numbered connections on the upward side and the even-numbered connections on the downward side. From the left, the pins are numbered 1, 3, 5, 7, ..., 33, 35. Near the lower right corner of the board, there will

be a 14-pin 74HCT74 chip. Pin 14 of the 74HCT74 is the one located nearest the corner of the board on the notched end of the chip. Immediately across from pin 14 is pin 1. The pins are numbered starting with the pin to the right of the notch, down the side of the chip and up the other side. The EPROM used for the GROM memory is a 28-pin chip located diagonally opposite the 74HCT74. Its pin numbering follows the same convention. Near (almost between) pin 21 and pin 22 of this EPROM you should find a circuit trace about one-eighth of an inch long that is not connected to any other traces on that side of the circuit board. These are the areas of the board you will be dealing with.

Start by taking the two 2.7K resistors and soldering them together at one end in a V-shape. Also solder a two-inch wire to the junction. Clip the leads on the other end of the resistors to about one-quarter of an inch. Locate connections 19 and 29 on the plug connector. (See lower diagram.) Solder the end of one resistor to each connector (some bending of the leads will be required to make the resistors lie flat against the circuit board).

Next, remove the following pins from the new 74LS32 since they will not be used: 1, 2, 3, 8, 9, 10, 11, 12 and 13. These may be broken off by repeated bending near the chip body. Bend pins 4, 5 and 6 straight out. CAREFULLY bend pins 7 and 14 outward. (See upper diagrams.) This is required since the 74LS32 must be added to the bottom side of the board. Because of the thinness of the case, chips near the connector cannot be socketed or stacked without interfering with the case. Do not over-bend these pins or they will break off. The pins should now extend above the top of the chip. Clip these pins so they are flush with the top of the chip body. You should now be able to place the chip on the bottom side of the board under the 74 HCT74 with the notched ends pointing the same way and have pins 7 and 14 line up with each other. Solder pins 7 and 14 of the

(See Page 28)

Super Savings

NEW LOWER PRICES

On Essential Software Packages
for the Texas Instruments Home Computer

As part of its program of long-term support for the TI-99/4A user, Tex-Comp has purchased truck-load quantities of original TI Software that is essential to the serious & dedicated user.

In turn, Tex-Comp is passing the savings on to **YOU!**

All TI Software in this advertisement is brand new, original TI Product in factory-sealed packages and is sold with a full Texas Instruments warranty, which TI has publicly committed to.

Now is the time to buy **Key Software** at a fraction of its original cost.

There may never be a better time than now to buy



\$14.95
+ S&H

TI Multi-Plan

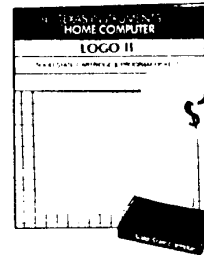
Electronic Worksheet with many advanced features and built-in ease of use. Requires disk drive and controller, and 32K memory Expansion Unit. Printer and RS-232 Interface recommended. Cartridge and Disk.



\$14.95
+ S&H

TI Writer

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



\$12.95
+ S&H

Logo II

In use by educators throughout the country. Requires cassette or disk based system and 32K memory expansion.



\$9.95
+ S&H

Editor/Assembler

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

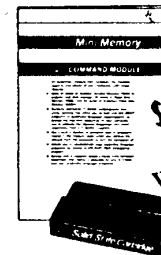


NEW LOW PRICE!
\$49.95
+ S&H

SUPER EXTENDED BASIC

includes everything in TI's original *Extended BASIC* plus 33 new and six modified commands. This cartridge is an important upgrade for programmers.

Super Extended BASIC incorporates 15 graphic subroutines for plotting and graphing.



\$12.95
+ S&H
WITH FREE Word Processing Bonus

Mini-Memory

This software cartridge adds memory to your system. Totals 14K of memory (6K of GROM, 4K of ROM, 4K of RAM). Mini Memory includes a built-in battery, permitting programs and data stored in RAM to be retained even if module is removed from console.

BONUS: FREE Mini-Writer I word processor (a \$19.95 value) with Mini-Memory Purchase.

SPECIALS: TI WRITER/MULTIPLAN UPGRADE DISK (reg \$4.95) \$1.00 with purchase of either.

"INTRODUCTION TO ASSEMBLY LANGUAGE" (\$15 value) only \$1.00 with Editor Assembler.

TI LOGO WORKBOOK (\$6 value) only \$1.00 with TI LOGO II

"TEACH YOURSELF EXTENDED BASIC" (disk or cass.) \$1.00 with SEB.

TERMINAL EMULATOR II MODULE (reg \$9.95) only \$4.95 with any of above!

Send order and make checks payable to:

TEX+COMP

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



AUTHORIZED DEALER



VISA and MASTERCARD

HOLDERS CALL DIRECT

(818) 366-6631

24 Hour Order Line

TERMS: All prices F.O.B. Los Angeles. For fastest service use cashiers check or money order. Add 3% shipping and handling (\$3.00 Minimum). East of Mississippi 4 1/2%. Add 3% for Credit Card orders. Prices and availability subject to change without notice. We reserve the right to limit quantities.

NOTE: Payment in full must accompany all orders. Credit card. Company check or Money order for immediate shipment. Personal Checks require up to 4 weeks to clear. California orders add 6 1/2% sales tax.

Hardware project

(Continued from Page 26)

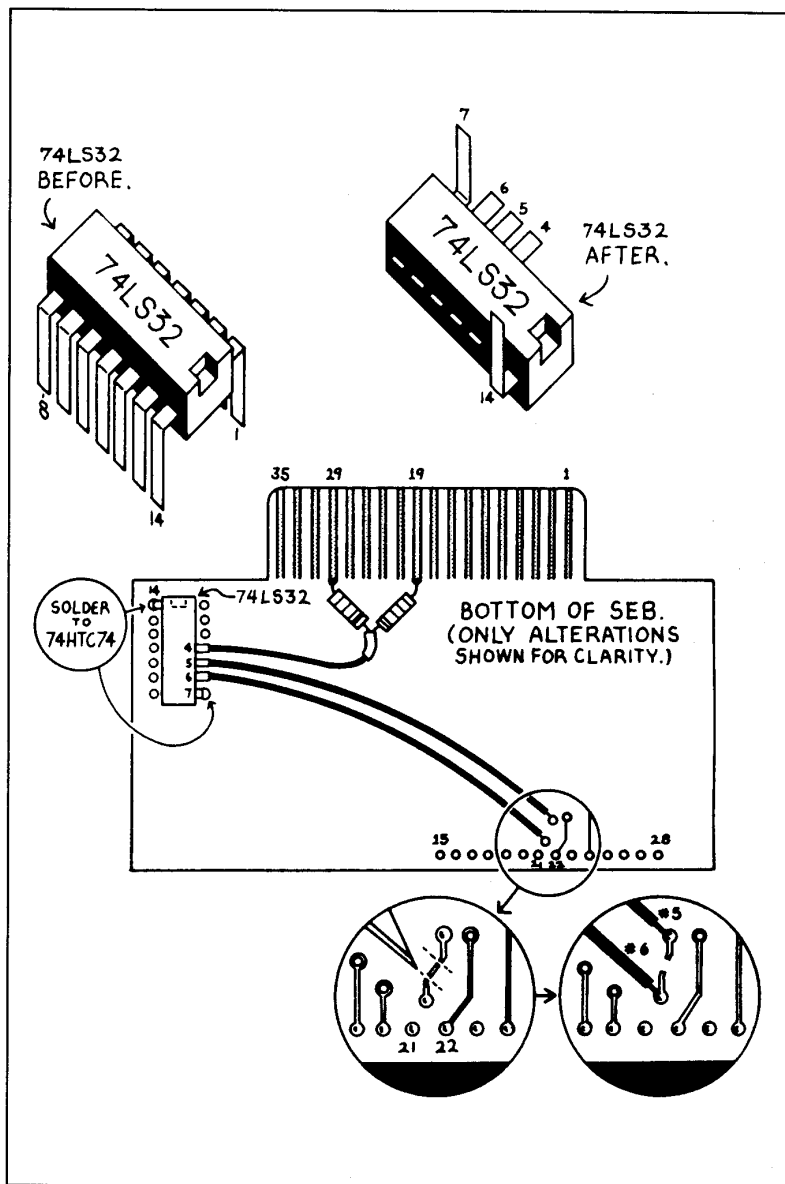
74LS32 to pins 7 and 14 of the 74HCT74 where they stick through the board. Then solder the wire from the two resistors to pin 4 of the 74LS32.

After locating the trace near pins 21 and 22 of the EPROM, use a hobby knife to make two cuts across this trace about 1/16 of an inch apart. (The insert on the lower diagram shows this both before and after cutting the trace.) Use the tip of the blade to remove the trace between the cuts. Next, carefully scrape the green coating from the holes where this trace passed through the circuit board on both sides of the cut. DO NOT remove the metal from these parts of the trace. From the cleaned hole nearest the plug connector, solder a wire to pin 5 of the 74LS32. From the other hole, solder a wire to pin 6 of the 74LS32. Recheck all your work. Be sure that no stray pieces of solder or wire are making connections anywhere on the board not described here.

Before you can reinstall the module in the case, you will notice that the resistors will interfere with part of the case. Simply use the knife to cut away a small amount of plastic here so that the board will fit snugly in the case. When the module is reassembled, this will be visible only when looking directly into the connector.

Although this same method should work on any Triton SEB module, I can only assume that the specific locations of chip and traces are the same in all SEB modules. Unless you can positively identify these traces, do not attempt this modification. Once reassembled, the module should function just as it did before, but it will now also allow proper use on the Widget. If any problem occurs that you are not capable of solving, the components you added may simply be removed and the trace that was cut can have a wire soldered across it to return the module to its original state.

Guion and Stanfill are members of the Dallas TI Home Computer Group. — Ed.



Asgard offers Cassette Labeler, Typewriter 99

Asgard Software is offering Cassette Labeler and Typewriter 99.

Cassette Labeler, for audio or computer cassettes, is described by the manufacturer as a program which prints a detailed list of the contents of each tape, complete with lines to cut and fold. The program, by Tom Wynne, is available on disk or cassette and requires Extended BASIC and an Epson-compatible printer. Price is \$9.95.

Typewriter 99 is offered on the premise that a word processor is too difficult to use for many small tasks. The program, by Jim Reiss, is described as "turning your computer into a sophisticated electronic typewriter with centering, bold, underline, settable margins and tabs, pica, elite and even right justification and word wrap." The manufacturer says a window on the screen shows the six previous lines typed. The

program can be set up to print a line at a time or a character at a time.

The program is available on disk (requires 32K and Editor/Assembler or TI-Writer), cassette (requires Mini-Memory) or as a cartridge. The manufacturer says it will work with any printer. Price is \$9.95.

For information or to order, contact Asgard Software, P.O. Box 10306, Rockville, MD 20850. Shipping charge is 75 cents.

Hardware project

Card extender improves access when working on PEB cards

By TONY LEWIS

See Page 39 for a review of the Peripheral Expansion Box Prototype Board.—Ed.

One of the things that has always irritated me when working on PBox cards is the limited access to either side of the card after it is installed. It is always nice, and sometimes mandatory, to be able to check various pins on the cards with a voltmeter or pulse detector when you are troubleshooting problems. But with the PBox cards installed vertically, it is virtually impossible to reach and see where you want to get to with a probe. Here's a quick and easy way to build a "card extender," that will allow you to check the peripheral card outside the box while it is running.

DigiKey (701 Brooks Ave. South, P.O. Box 677, Thief River Falls, MN 56701, 1-800-344-4539) sells edgeboard connectors and plug-in lead edge connectors made by TI that work beautifully with the PBox and its cards.

For about \$15 (part numbers and prices are given in the chart at the end of this article), you can get a 60-pin plug connector, 60-pin edgeboard connector, five feet of 36-conductor ribbon cable and a small section of bare perfboard. The card extender can be put together as follows:

1. Cut the ribbon cable into two 2½-foot lengths. Remove six wires from each section. This will leave you with two 30 connector cables.

2. Carefully solder both cables to the edgeboard connector (one 30-conductor cable per side). Now mark the edgeboard connector on one end "F" for front, and "B" on the opposite end for back, to avoid problems when inserting the cards.

3. Solder the cables to the plug connector. Make sure the "left" cable of the edgeboard connector goes to the "left" side of the plug connector, and likewise for the "right" cable. Mark the plug connector "F" and "B" like you did the edgeboard connector to avoid orientation problems.

4. To avoid possible pull-out or electrical short problems, you can use the perfboard as a strain relief support. Cut the perfboard to fit around the soldering area on the plug connector, but leave room to allow for a small nut and bolt on both sides (it has holes for this purpose) to bolt the perfboard to the connector. Then glue, strap or clamp the two ribbon cables to the board. If you accidentally pull on the cables with this design, you won't pull the wires off the pin on the plug connector.

5. Use an ohmmeter to check continuity from pin to pin from the edgeboard connector to the plug connector on all 60 pins, making sure the Fs and Bs are aligned for both connectors. Also check to make sure none of the pins is shorted out against a neighboring pin.

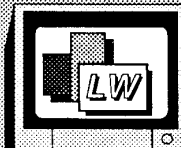
Now you should have an extension cable system that will allow you to operate a card approximately two feet from the back of the PBox, which should allow plenty of freedom in placing the card in a convenient work area. You could use longer cable lengths, but

I do not recommend it unless you use shielded cable, like the console-to-box interface cable. This is because the cable can pick up stray electronic magnetic interference, causing erroneous signals, and erratic card behavior. Because of this, you should not have items like transformers or fluorescent lights near your extension cable, or you may get some unwanted results.

You can also use wood blocks or other convenient material to fashion a base for the 60-pin edgeboard connector that will allow the PBox card to stand upright instead of lying on its side. This makes things much easier to get at either side of the card while in operation.

CARD EXTENDER CABLE ITEMS

Part Number	Price	Item
C8-30	\$5.58	30/60 plug connector
C5-30	\$3.93	30/60 edgeboard connector
R026-ND	\$4.53	36 lead ribbon cable
3405K-ND	\$2.31	2x4½-inch perfboard



**LAFAMME & WRIGLEY
WHOLESALE**
5480 Gander Road, Unit #18
CLONCESTER, ONTARIO
K1J 9J6
(613) 744-2225 FAX: 744-4784

LAFAMME & WRIGLEY
DATA (Phones):

Ottawa BBS (TEXLINK) (613) 738-0617
DELPHI "JANELAFAMME" (No space)
CompuServe "76046,2006"

Authorized Distributor for the following:

ASCARD SUPPLIES
GENIAL COMPUTERWARE
MYARC INC.
T and J Software

Support your Canadian dealers:

CANARIA DATA INC.
264 Weber St. W.
Kitchener, Ontario
N2H 4A6
(519) 578-3873

DATA*PORT
2846 Gottingen St.
Halifax, N.S.
B3K 3E1
(902) 454-0232
Data (TEXLINK) 455-2076

**COMPUTER DOWNLOAD
UNLIMITED**
8 Talon St.
North Bay, Ontario
P1A 1N5
(705) 476-9391
Data (TEXLINK) 476-3043
CompuServe "73657,3617"
DELPHI I.D. "CDU"

DEALER ENQUIRIES WELCOME

GENEVE

Use Palette Master to mix colors

By JEFF KITTKA

Palette Master is an Extended BASIC program for the Geneve. It consists of the main program, "Master," and an assembly language subroutine called "Palette."

The program allows any of the 16 default colors to be redefined as any of 512 colors in the internal palette.

PROGRAM KEY STROKES

UP ARROW = Move color selector box up
DOWN ARROW = Move color selector box down
R = Increase RED level
E = Decrease RED level
G = Increase GREEN level
F = Decrease GREEN level
B = Increase BLUE level
V = Decrease BLUE level

Note: The color level controls are the same as MY-Art.

When you press Enter, an option menu appears at the bottom of the screen. Selections are:

L = Load a saved palette
S = Save current palette
P = Print current color data
E = Exit program

After loading the program, manipulate the colors anyway you wish. Default values are loaded with the program. Save as many palettes as you wish.

Experiment with different colors for different programs, such as MY-Word or TI-ARTIST. When you exit this program the current color palette is retained until reset.

PROGRAM NOTES

Enter the Extended BASIC "Master" program and save it under the name MASTER.

Enter the "Palette" program using MY-Word in the Program

PALETTE MASTER Default Palette

COLORS	RED LEVEL	GREEN LEVEL	BLUE LEVEL
2	0	0	0
3	1	6	1
4	3	7	3
5	1	1	7
6	2	3	7
7	5	1	1
8	2	6	7
9	7	1	1
10	7	3	3
11	6	6	1
12	6	6	4
13	1	4	1
14	6	2	5
15	5	5	5
16	7	7	7

Edit mode. Save it to disk. Then load the Editor/Assembler cartridge files. Select Load from the E/A menu screen and load the editor files from E/A diskette A. Then, in response to the prompt, load the Palette file. Now save the Palette files, answering "no" to the prompt that asks whether to save it as a variable file. Palette must be saved as a DF/80 file.

Place both programs on the same disk. The program is designed to run from DSK1 but by changing the drive designation in line 2 can be loaded from any drive.

PALETTE MASTER

```

1 CALL INIT !157
2 CALL LOAD("DSK1.PALETTE")!
025
5 DIM CODAT(16,3)!066
6 CPOS=16 :: RC=17 :: GC=22
:: BC=27 !027
10 CALL CLEAR :: CALL LINK("
RESET")!166
15 PRINTER$="PIO" !184
16 FILE$="DSK1.DEFAULT" !027
20 FOR I=1 TO 14 :: CALL COL
OR(I,2,16):: NEXT I !129
30 CALL CHAR(128,"007E7E7E7E
7E7E00")!140
35 CALL CHAR(136,"FF00000000
0000000000000000FFFF0101
01010101010101010101FF")

```

```

!065
40 CALL CHAR(132,"FF01010101
8101FF")!109
45 CALL CHAR(62,"00000402FF0
20408")!248
50 DISPLAY AT(1,9):"Palette
Master" !147
60 DISPLAY AT(2,9):"by Jeff
Kittka" !055
70 FOR I=2 TO 16 :: READ GRE
EN,RED,BLUE !099
75 CODAT(1,1)=GREEN :: CODAT
(1,2)=RED :: CODAT(1,3)=BLUE
:: NEXT I !128
77 DISPLAY AT(4,1):"COLOR" !
169
80 FOR R=5 TO 12 :: DISPLAY

```

```

AT(R,1):" ";R-3;">" :: NEXT
R !125
85 FOR R=13 TO 19 :: DISPLAY
AT(R,1):" ";R-3;">" :: NEXT
R !147
90 FOR SP=2 TO 16 :: CALL SP
RITE(#SP,128,SP,SP*8+17,60):
: NEXT SP !181
100 CALL SPRITE(#1,132,2,CPO
S*8+17,60)!234
110 DISPLAY AT(5,20):"||" !1
08
111 DISPLAY AT(7,17):"COLOR"
;CPOS !205
120 DISPLAY AT(6,20):"||" !1
11

```

(See Page 31)

PALETTE MASTER—

(Continued from Page 30)

```

121 DISPLAY AT(9,14):" 7
7 7" !081
122 DISPLAY AT(10,14):" 6
6 6" !119
123 DISPLAY AT(11,14):" 5
G 5 5" !156
124 DISPLAY AT(12,14):"R 4
R 4 B 4" !249
125 DISPLAY AT(13,14):"E 3
E 3 L 3" !231
126 DISPLAY AT(14,14):"D 2
E 2 U 2" !237
127 DISPLAY AT(15,14):" 1
N 1 E 1" !192
128 DISPLAY AT(16,14):" 0
0 0" !107
130 RR=16-CODAT(CPOS,2):: GR
=16-CODAT(CPOS,1):: BR=16-CO
DAT(CPOS,3)!025
135 CALL HCHAR(RR,RC,62):: C
ALL HCHAR(GR,GC,62):: CALL H
CHAR(BR,BC,62)!248
140 CALL HCHAR(22,1,32,64)::
DISPLAY AT(22,4):"PRESS ENT
ER FOR OPTIONS" !081
500 !COLOR POSITION !151
510 CALL KEY(0,K,S):: IF S<1
THEN 510 !069
511 IF K=13 THEN 800 !087
515 IF K=82 OR K=69 THEN 600
!144
516 IF K=71 OR K=70 THEN 650
!184
517 IF K=66 OR K=86 THEN 700
!245
520 IF K=10 THEN CPOS=CPOS+1
:: GOTO 540 !058
530 IF K=11 THEN CPOS=CPOS-1
ELSE 510 !150
540 IF CPOS<2 THEN CPOS=16 !
071
545 IF CPOS>16 THEN CPOS=2 !
072
550 CALL SPRITE(#1,132,2,CPO
S*8+17,60)!234
555 CALL COLOR(14,2,CPOS)!02
7
556 DISPLAY AT(7,17):"COLOR"
;CPOS !205
560 CALL VCHAR(9,RC,32,8)::
CALL VCHAR(9,GC,32,8):: CALL
VCHAR(9,BC,32,8)!106
565 RR=16-CODAT(CPOS,2):: GR
=16-CODAT(CPOS,1):: BR=16-CO
DAT(CPOS,3)!025
570 CALL HCHAR(RR,RC,62):: C
ALL HCHAR(GR,GC,62):: CALL H
CHAR(BR,BC,62)!248
590 GOTO 510 !078
600 RED=CODAT(CPOS,2):: GREE
N=CODAT(CPOS,1):: BLUE=CODAT
(CPOS,3)!227
605 IF K=82 THEN RED=RED+1 !
160
610 IF K=69 THEN RED=RED-1 !
166
615 IF RED>7 THEN RED=0 !097
620 IF RED<0 THEN RED=7 !096
625 CALL VCHAR(9,17,32,8)::
CALL HCHAR(16-RED,RC,62)!130
630 CODAT(CPOS,2)=RED !084
635 CALL LINK("COLOR",CPOS-1
,RED,BLUE,GREEN)!128

```

(See Page 32)

HORIZON 3000 RAMDISK

HORIZON 3000 RAMDISKS

Type Kit == cost/ea
Zero K=\$105. 96k=\$165.
192k=\$225. 384k=\$335.
512k=\$385. 1 MEG=\$695.
800k for Geneve = \$560.
90k boot " add \$ 90.

READY TO RUN ADD \$40.00 WE assemble
and provide Limited 90 Day Warranty

KITS have the HORIZON 3000 Card,
Instructions,MENU-7.35, ROS and ALL
needed parts (using NEC 43256-LP12)
(The 128x8 static RAM's are scarce,
and allow up to 1.5 MEG w/o stacking)
32/16 Console Mem Mod =\$45.
Old 180k upgrade to 256k =\$80.
Bare HORIZON 3000 Cards
with manual and software =\$40.

RAMDISK PRICES Subject to CHANGE
Call 419 385 5946 for FIRM Quote.
These Prices GOOD TO MAR 15,1989
(Based on current Memory Prices)

SEND YOUR BUD MILLS SERVICES
ORDER TO 166 Dartmouth Drive
Toledo Ohio 43614

Ohio Residents add 6% sales tax
Shipping and Handling included within U.S. and Canada
Shipping OverSeas ADD \$ 5 Surface or \$15 AirMail
Call TI-COMM BBS on 419 385 7484 for current prices or information
300 Baud,7bit,even / 1200 baud,8bit,no parity
GET Current Software Downloads SELECT MEG Info...M at sign on...
PHOENIX RAMDOS114 and MENU-7.35
Please include your Name, Address AND Phone # with order...

*** Visa, MC, AmEx add 10% Call 1-800-456-9272 (DISK ONLY SOFTWARE) ***

P-GRAM CARD

by John Guion and Robert Jones

The P-GRAM card is a GROM Emulation Card for
use with the TI 99/4A Requires Periphial
Expansion Box, 32k and Disk Drive.
The P-GRAM will save and run MODULES and is
compatible with files saved by the
GRAM-KRACKER or Cart-Save.

A fully documented Source Code on disk and
USER Manual allow you to SAVE Modules, EDIT
as you wish, LOAD to card and RUN.
The P-GRAM card contains 72k of battery
backed RAM memory (1p CMOS) 40k GRAM for
GROM emulating, 16k for Module RAM
bank-switched, and 16k of DSR RAM also bank
switched.
The Optional CLOCK is not required for proper
operation of the P-GRAM, but the price is
right.

P-GRAM KIT=\$150.00 +Clock +\$20.00

FULLY ASSEMBLED,TESTED
and READY TO RUN, P-GRAM=\$180.00
WARRENTED 6 Mo. with Clock=\$200.00

Please allow 2 to 4 weeks for delivery.

CALL or WRITE for additional information.

ASSISTANCE
OR REPAIR
AVAILABLE

PALETTE MASTER—

(Continued from Page 31)

```

640 GOTO 500 !068
650 RED=CODAT(CPOS,2):: GREE
N=CODAT(CPOS,1):: BLUE=CODAT
(CPOS,3)!227
655 IF K=71 THEN GREEN=GREEN
+1 !202
660 IF K=70 THEN GREEN=GREEN
-1 !202
665 IF GREEN>7 THEN GREEN=0
!141
670 IF GREEN<0 THEN GREEN=7
!140
675 CALL VCHAR(9,22,32,8)::
CALL HCHAR(16-GREEN,GC,62)!0
09
680 CODAT(CPOS,1)=GREEN !233
685 CALL LINK("COLOR",CPOS-1
,RED,BLUE,GREEN)!128
690 GOTO 500 !068
700 RED=CODAT(CPOS,2):: GREE
N=CODAT(CPOS,1):: BLUE=CODAT
(CPOS,3)!227
705 IF K=66 THEN BLUE=BLUE+1
!060
710 IF K=86 THEN BLUE=BLUE-1
!063
715 IF BLUE>7 THEN BLUE=0 !2
51
720 IF BLUE<0 THEN BLUE=7 !2
50
725 CALL VCHAR(9,27,32,8)::
CALL HCHAR(16-BLUE,BC,62)!19
2
730 CODAT(CPOS,3)=BLUE !162
735 CALL LINK("COLOR",CPOS-1
,RED,BLUE,GREEN)!128
740 GOTO 500 !068
800 CALL HCHAR(22,1,32,64)::
DISPLAY AT(22,1):"L=Load P=
Print S=Save E=Exit" !019
810 DISPLAY AT(23,8):"Enter=
Edit Colors" !194
820 CALL KEY(0,K,S):: IF S<1
THEN 820 !125
830 IF K=13 THEN 140 !192
835 IF K=69 THEN 998 !040
837 IF K=76 THEN 950 !246
840 IF K=83 THEN 900 !194
845 IF K<>80 THEN 820 !048
846 CALL HCHAR(22,1,32,64)!2
25
847 DISPLAY AT(22,8):"Title=
";SEG$(FILE$,6,10)!144
848 ACCEPT AT(22,15)SIZE(-10
):T$ !132
849 FILE$=SEG$(FILE$,1,5)&T$
!025
850 OPEN #1:PRINTER$ !147
855 PRINT #1:"
Palette Mast
er" !086
860 PRINT #1:"
by Jeff Kitt
ka" !249
865 PRINT #1:"" !015
867 T$=SEG$(FILE$,6,10)!079
870 PRINT #1:"
"&T$ !128
875 PRINT #1:"" !015
880 PRINT #1:"
RED GREE
N BLUE" !158
882 PRINT #1:" COL
OR LEVEL LEVE
L LEVEL" !050884
PRINT #1:"" !015
885 FOR I=2 TO 9 :: R=CODAT(
I,2):: G=CODAT(I,1):: B=COD
A(I,3)!073
887 PRINT #1:" ";
I;" ";R;" ";B !098
888 NEXT I !223
889 FOR I=10 TO 16 :: R=COD
A(I,2):: G=CODAT(I,1):: B=C
ODAT(I,3)!168
890 PRINT #1:" ";I
;" ";R;" ";B !065
895 NEXT I !223
896 CLOSE #1 !151
897 GOTO 800 !114
900 CALL HCHAR(22,1,32,64)!2
25
905 DISPLAY AT(22,4):"File N
ame=";FILE$ !218
910 ACCEPT AT(22,15)SIZE(-15
):FILE$ !085
920 OPEN #1:FILE$,RELATIVE 1
6,INTERNAL,FIXED 128 !034
925 FOR I=2 TO 16 :: G=CODAT
(I,1):: R=CODAT(I,2):: B=COD
AT(I,3)!120
930 PRINT #1,REC I:R;G;B !10
1
931 NEXT I !223
(See Page 33)

```

```

00146      A0000B0000B0000B0000B0000A000A002ABC80BC00007F36BF      0001
A002EB02E0C000AB0300B0000B04C0B0201B0001B0420B200CB0420B20187F328F      0002
A0044B12B8BC0A0B834AB0242B000FBC802C0008B0201B0002B0420B200C7F2E5F      0003
A005AB0420B201B012B8BC0A0B834AB0242B0007BC802C0002B0201B00037F2F5F      0004
A0070B0420B200CB0420B201B012B8BC0A0B834AB0242B0007BC802C00047F2EDF      0005
A0036B0201B0004B0420B200CB0420B201B012B8BC0A0B834AB0242B00077F301F      0006
A009C8C802C0006BC060C0004BC0A0C0002B06C2B06C1B0A42BA042BC0207F2B5F      0007
A00B2C0008BC0A0C0006B0260B1000B0420B2030B0801B8C04B05C2B08027F2E1F      0008
A00C8B8C04B0300B0002B02E0B83E0EC2E0C0000B04E0B837CB045BB00007F2B8F      0009
A00DEB1106B3307B1701B2703B5101B2706B7101B7303B6106B6406B11047F310F      0010
A00F4B6502B5505B7707BC80BC0000B02E0C000AB0300B0000B0201B01007F309F      0011
A010AB0203B0000B0200B0010B0001B06C0B0420B2030BC0A3C00DCB08027F2F2F      0012
A0120B8C04B06C2B0802B8C04B05C3B0221B0100B0281B1000B16EDB03007F2D8F      0013
A0136B0002B02E0B83E0BC2E0C0000B04E0B837CB045B7F5F1F      0014
5002ACOLOR 500FARESET 7FA63F      0015
:      99/4 AS      0016

```

Enter this code using the MY-Word Program Edit mode. Then load and save through E/A as a D/F80 file.

Myarc Q&A

Geneve graphics capabilities aren't exploited by software

Myarc Q&A is designed to answer questions about Myarc products. Answers are provided by Myarc spokesman Jack Riley. Readers are encouraged to submit questions to MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

Using the HFDC, will we be able to have hard disk-type directories on our floppies?

You will be able to have three subdirectories on a floppy with the HFDC. MDM5 supports that now. If you're using "H" version of DOS, and you have the 80-track EPROM on a floppy disk controller — or you have the hard and floppy disk controller installed — you'll be able to support subdirectories from DOS.

Why does GEME allow the running of only four programs (simultaneously)? I

MASTER PALETTE—

(Continued from Page 32)

```

935 CLOSE #1 !151
940 GOTO 800 !114
950 CALL HCHAR(22,1,32,64)!2
25
955 DISPLAY AT(22,4):"File N
ame=" ;FILE$ !218
960 ACCEPT AT(22,15)SIZE(-15
):FILE$ !085
970 OPEN #1:FILE$,RELATIVE 1
6,INTERNAL,FIXED 128 !034
975 FOR I=2 TO 16 :: INPUT #
1,REC I:R,G,B !075
980 CODAT(I,1)=G :: CODAT(I,
2)=R :: CODAT(I,3)=B :: CALL
LINK("COLOR",1-1,R,G,B)!003
981 NEXT I !223
982 CLOSE #1 !151
985 GOTO 800 !114
998 CALL CLEAR !209
999 END !139
1000 DATA 0,0,0,6,1,1,7,3,3,
1,1,7,3,2,7,1,5,1,6,2,7,1,7,
1,3,7,3,6,6,1,6,6,4,4,1,1,2,
6,5 !154
1010 DATA 5,5,5,7,7,7 !012

```

thought we would be able to run as many as we wanted, memory permitting.

It's a matter of speed. The more programs that you run, the more CPU cycles it takes to keep them all working, and the slower it runs. So, what appears to be optimum ... in other words, you can run only four programs so that it appears that they are all running normally. More than that and you'd notice them slowing down.

Will the 9640 operating system ever be modified to take advantage of the 16-bit addressed (32K-chipped) Horizon RAMdisk+?

It is my understanding that that modification in MDOS V1.15, which hasn't been released, has been done. Not having fully tested it I can't speak with authority, but that's my understanding at this point.

What RGB color monitors have been proven to take full advantage of the advanced graphics capabilities of the Geneve?

Essentially a monitor that uses 640x400 resolution: 640 horizontal, 400 vertical. Of course, the 9640 is 512x424, but monitors will fall into a different range — 640x400. You can buy them as multisyncs, across the board. For example, the newest monitor from Commodore uses a 640x400 resolution, RGB analog interlace with audio. But that's essentially what you're looking for.

How about monochrome monitors?

Again, you're looking at resolution. And you're matching resolution to the maximum resolution output of the 9640. Currently there are no programs that put out or require that resolution. GEME (Graphics Enhanced Multi-Tasking Environment) has that as an option. You can go into the highest resolution, as will MY-Pro-Art or MY-Art II (whichever we end up naming it). As we speak, there's no software that requires higher than 512x212.

What about bandwidth?

If you are going to use interlace, bandwidth — as I understand it — can have an effect. Essentially, the output of the 9640 is 15.75 KHz, the same as the output on the /4A. But, if you're using monochrome ...

we're using a couple of monochrome monitors for word processing and we actually use them in composite mode, in 80-column mode and they are excellent. You can buy those for \$100 or less. Based on what I've seen, I don't know if I would recommend going to an expensive monochrome monitor.

Do multisync monitors require a period to establish sync with the 9640? If so, how long?

It is my understanding that it does ... generally we use a resistor in the cabling and that's the way it is done. It's a very technical question. The one thing I understand from several 9640 owners who have used them is that multisync monitors allow them to use the interlace mode without any flicker. That's been reported on a Magnavox monitor and several other brands. It is also my understanding that probably the best monitor in terms of image on the screen, the look, is the flat screen by Zenith. But you are talking about fairly expensive monitors — \$400 to \$800 monitors at street price, not the list price.

Will the HFDC card support the 5¼-inch Kodak floppy drive or the 5¼-inch Amlyn drive? The Kodak is rated 3 megabytes at 160 tracks with 17 sectors per track. The Amlyn is rated at 2.3 or 2.6 megabytes with 154 tracks and 15 or 16 sectors per track.

I would assume that if it works on an IBM-XT then it work with the HFDC. At 160 tracks and 17 tracks you're talking about the IBM format, and TI doesn't use the IBM format. The HFDC will use either 9, 16 or 18 sectors per track, 9 being single-density, 16 and 18 being double-density, and either 40 or 80 track per side. Obviously, 80 and 80 is 160, so you've got 80 per side for 160. So, if you're talking about an 80 track drive and it's IBM-XT compatible then it will probably will work. I say 'probably' because all drive manufacturers don't do their electronics exactly the same and you'll see some drives that won't work. The same thing with hard drives. Not every

(See Page 34)

Making labels

TINYGRAM lets the user customize his diskette labels

By ED MACHONIS

DISK LABEL was written to solve the problem of the missing disk labels which are not included with packages of bulk diskettes. This TINYGRAM prints an attractive disk label on an ordinary 15/16 x 3 1/2-inch mailing label.

I have been using mailing labels as disk labels for several years without any problems. They are the preferred label for my disks; the "store boughten" kind are only used as temporary labels until a permanent one can be printed. It is much easier to locate a disk in a storage case when the name is printed with an expanded type style. Colored ribbons add a nice touch.

The label displayed in Fig. 1 is an example of the labels generated by the program. The disk name appears on the first line in expanded, emphasized, underlined double-strike type and is limited to 17 characters. The second line is available for those disks with longer titles or where two titles are appropriate (great for floppies); the same type style is used. Centering of titles is done by the program. If not required, the second line is left blank to

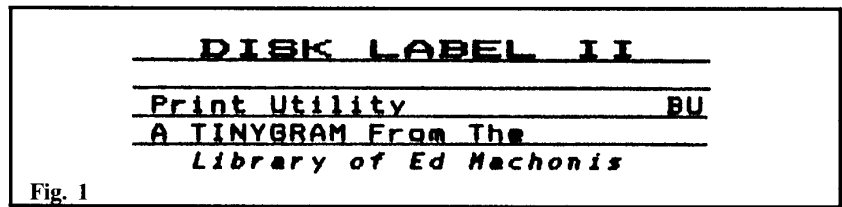


Fig. 1

enhance appearance and locatability.

The third, fourth and last lines are limited to 28 characters, are printed expanded, compressed, double-strike and, except for the last line, are underlined. The last line is also italicized.

The third line is used for describing the disk contents, such as GAMES, UTILITIES, MP DATA, etc. The end of the line can be used to identify back ups or disk format such as BU, DSDD, etc.

The fourth line is for remarks and can be used for language, loading information, program names, etc. When required, the third and even the fifth line can also be used for remarks.

The last line is used to identify the owner; handy for those user group demos, ensuring you go home with the disks you arrived with. It is also useful for identifying a user group's library copies. Centering is automatic.

Using the program is very simple, just respond to the prompts. The program automatically limits the number of characters for the various lines of the label so that you cannot type in too long a line. If you notice a typing error after pressing enter, not to worry. Just continue with the other entries and for "How Many?" enter zero. You will be returned to the first line and need only to accept the defaults until the error is displayed for correction.

I always enter 1 for a quantity at first and look over the label to see if it's as intended and then print the number of copies required. I often print a few extra copies for later use and either place them in the back-up's jacket or in a label box. Saves reloading the blank labels at some future time just to print a label or two. If you trade many disks, the last line of the extra copies can be left blank.

Usage is not limited to disk labels. It has

been used to identify binders of our user group's newsletter library, name tags, place cards, bookplates, etc.

The print codes are for the Epson RX-80 printer. If your printer requires different codes, the cast of characters, in order of appearance, are as follows:

[ESC-ESC=CHR\$(27)]

ESC&"F"	Emphasized
ESC&"G"	Double Strike
ESC&"1"	Underline
ESC&"W1"	Expanded
ESC&"F"	Cancel Emphasized
CHR\$(15)	Compressed
ESC&"0"	Cancel Underline
ESC&"4"	Italics
ESC&"5"	Cancel Italics

The Epson compressed mode is 137 columns wide. Printers with other widths may change length of underlining. If so just change the TAB setting of the null strings for the respective lines. Epson's emphasized mode takes precedence over compressed and cancels it upon return to line 6. Your printer may require cancellation of compressed print at the end of line 7.

DISKLABEL

```
1 ! *** DISK LABEL II ***
  A Tinygram by Ed Machonis
  QB-99ers, Bayside, NY !1
86
2 OPEN #1: "PIO" !253
3 DISPLAY AT(3,1)ERASE ALL: "
  DISK NAME?": D$ :: ACCEPT AT(
  4,1)SIZE(-17): D$ :: DISPLAY
  AT(7,1): "Continued?": C$ :: A
  CCEPT AT(8,1)SIZE(-17): C$ !1
84
4 DISPLAY AT(11,1): "TYPE?": T
  $ :: ACCEPT AT(12,1)SIZE(-28
  ): T$ :: DISPLAY AT(15,1): "RE
```

(See Page 35)

MYARC Q&A—

(Continued from Page 33)

Not every one of the hundreds of possible combinations of hard drives will work with the HFDC. There are some that won't.

So the farther you get away from the 'standard' drives, the more the user is taking a personal risk as to compatibility?

Sure, obviously the popular drives are the ones we have seen and are the ones most of the users have so we know about those. We're talking about the TEACs, the Mitsubishis, the Sonys and what have you. But I would assume that if it works on the XT — and if you're talking about 160 track being an 80 track drive — that is probably will work.

Of course, the HFDC will also support with an upgraded EPROM is 80-track per side quad-density, or 36 sectors per track. That's how you reach a total of 1.44 megabytes per floppy. That's 5 1/4 or 3 1/2.

Reader to reader

Jonathan Luke Lester writes the following:

Does anyone know anything about the following items:

- 1) How to add a 16-bit bus to the TI.
- 2) My CorComp 9900 Micro-Expansion System keeps destroying its transformers. As far as I can tell, the transformer's core has melted down. Does anyone know why this happens?

Also, I need someone who can check some electronic schematics I have drawn. They include the following:

- 1) A stand-alone speech synthesizer that has built-in text-to-speech software.

2) A redesigned keyboard with a hex type keypad.

3) A parallel port splitter. That can divert the signal into one of three different ports.

4) A GROM port that can hold up to five cartridges and be able to call other cartridges by a pushbutton or by commands sent from the keyboard.

Anyone who can check Lester's schematics is asked to write for a copy of them to Jonathan Luke Lester, 61 Three Forks Rd., Jolo, WV 24850.

TSgt. Paul S. Hotchkiss has recently

been assigned to Kunsan Air Base in Korea and would like to contact other TI Users in that country or receive correspondence from U.S. TI users. Write him at PSC Box 3287, APO San Francisco 96264.

Reader to Reader is a column designed to put readers in touch with each other. Anyone with a specific problem or question that may be answered by other readers is encouraged to submit an item. Be sure to address it to Reader to Reader, c/o MICROpendium, P.O. Box 1343, Round Rock, TX 78680.

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 I20S 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 I28K Card, PTERM-99, TI-Runner.

February: Super Extended BASIC, Beginning Assembly Language for the TI, ZORK II.

March: Morning Star Software CP/M Card, WDS/100 Winchester Disk Drive, Sketch Mate, BMC Color Monitor.

April: 9900 Micro Expansion System, Disk+Aid, Gemini 10X-15X.

May: Character Sets and Graphics Design, Draw 'N Plot.

June: GRAPHX, DATA BASE I.

July: Acorn 99, Advanced Diagnostics.

August: Model Dow-4 Gazelle, TI-Artist, PC-KEYS, Not-Polyoptics' Bankroll.

September: Midnite Mason, Myarc 32K/I28K Card, GRAPHX Companion.

October: 4A/TALK, Extende BASIC II Plus, XB Detective, Console Writer 2.a.

November: Foundation Z80A/80-column cards, 9900BASIC, Adventure Editor.

December: Display Enhancement Package, Triple

Tech

1986

January: BITMAC, Starcross.

February: Night Mission, Peripheral Diagnostic Module, BA-Writer.

March: Super Duper, Tunnels of Doom Editor, Business Graphs 99.

April: U.S. Open Tennis, PRBASE.

May: 4A Flyer, GRAM Kracker, Artist's Companion.

June: Myarc Disk Controller Card, Maximem.

July: Horizon RAMdisk, Old Dark Caves, Funlwriter, TI99/4A Macro Assembler.

August: JOYPAINT 99, GPL Assembler, TI99/4A Intern, GPL Linker.

September: Mechatronic I28K Card.

October: TI-Forth Utilities, CorComp Memory Plus.

November: Submarine Commander, PER, 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 I200/I200hc 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, Textlink BBS.

July: Artist Enlarger.

August: Granulator, Barrage.

September: Myarc Hard & Floppy Disk Controller, Game Writers Pack I, Graphic Lister.

October: Bunyard Hardware Manual, Writerease Update, M-Copy, Disk of Dinosaurs, Infocom Fast Loader.

November: TI-Base, 3D-Maze, Macflx, Disk Labeler 99.

December: P-GRAM Card, Epyx 500XJ Joystick, Enhanced Display Package, Starfleet Technical Drawings, Carfax Abbey, Rocketman.

1989

January: First Base V1.0, Picture—It.

DISKLABEL—

(Continued from Page 34)

```
MARKS?" : R$ :: ACCEPT AT (16,1)
)SIZE(-28) : R$ :: E$-CHR$(27)
!057
```

```
5 DISPLAY AT(19,1) : "YOUR NAME" : N$ :: ACCEPT AT(20,1)SIZE
E(-28) : N$ :: INPUT "HOW MANY
COPIES?" : Q :: FOR J=1 TO Q
!182
```

```
6 PRINT #1: E$&"E"; E$&"G"; E$&
"-1"; E$&"W1"; TAB((18-LEN(D$)
)/2); D$; TAB(18); ""; TAB((18-LEN(C$)
)/2); C$; TAB(18); ""; E$&
"F"; CHR$(15); TAB(2); T$; !026
7 PRINT #1: TAB(30); ""; TAB(2)
; R$; TAB(30); ""; E$&"-0"; E$&"4
"; TAB((30-LEN(N$))/2); N$; E$&
"5" :: NEXT J :: GOTO 3 !070
```

Support our advertisers

Triad

One program that does a lot

By BOB CARMANY

Triad presents an interesting problem. How do you review a program that does things that are already done by other programs? Certainly, the idea of combining a text editor, disk manager and terminal (modem) program into a single package is hardly a new idea. One only has to look at the Funnelweb package to realize that! So, what's the big deal?

The fact that everything is neatly tied together in one memory-resident package was enough to warrant a close look and see exactly what it would do. The first title screen and the beginning of the documentation explain exactly what the program is like. Whether it is the "vanilla program" of the title screen or just one in a "plain brown wrapper" is a matter of your point of view. Everything is there, though, a terminal program, text editor and disk manager. They are all selectable with a simple keypress.

Performance: The program presents a neat little menu after the title screens are gone, so let's start with it:

- 1-Terminal emulator
- 2-Disk manager
- 3-Editor
- 4-Configure system
- 5-Load EAS file
- 6-QUIT to title screen

The terminal program has the basic functions you would expect in a simple terminal program (and one or two that are welcome surprises). You have to dial the number of your favorite BBS manually and then enter your log-on information. From that point, everything is simple and straightforward.

The only problem I encountered was one of the "operator malfunction" type and I'll pass it on to you lest you think the program is at fault. Some systems allow you to enter a default for file exchanges that may conflict with the XMODEM 128-byte transfer protocol. If such an option is available (it is on our ROS board) make sure you haven't selected 1K XMODEM (i.e. YMODEM).

Now, back to the program. The program uses function keys (all detailed in the docs) perform the various functions in the ter-

Review

Report Card

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

Cost: \$20

Manufacturer: Wayne Stith; distributed by Genial Computerware, Box 183, Grafton, MA 01519

Requirements: Console, monitor or TV, disk system, 32K memory expansion, Extended BASIC, printer and modem

minal program. Everything worked fine. A disk directory is available by pressing FCTN-1, a buffer purge (yes, there is a buffer available) with FCTN-2 and a force buffer write to disk with FCTN-3. FCTN-4 aborts any file transfer. The file transfer protocols are all set with a single keypress after using FCTN-5 to get to the default screen. FCTN-6 activates the transfer protocol you have chosen. FCTN-7 allows you to reconfigure your RS232 defaults and FCTN-8 will allow you to page back in the buffer. There is even an automatic log (buffer dump) that can be selected in the configure portion of the program.

Selecting No. 2 gets you to the Disk Manager portion of the program, as close to a full-featured program as in the whole lot. You can copy, delete, unprotect, protect, rename and view a D/V 80 file simply by selecting the first letter, respectively, of each command. FCTN-6 will cause the chosen action to be executed.

The disk functions include format with subprompts for single or double-sided disks and single or double density. There is a copy disk function and a sweep disk function as well. Everything once again works just fine.

Select No. 3 and you are in the Editor portion of the program. Basically, it is an abbreviated text editor for producing notes or ASCII files to be used in conjunction

with the terminal portion of the program. The text is stored in the common buffer area and can be sent as an ASCII file from the terminal emulation program.

The fourth selection on the main menu gives you the configuration screens that allow the user to set screen colors, terminal defaults, log filenames, etc. They all work perfectly, but make sure you do your "playing" on a backup copy to be safe.

The fifth choice is an EA5 loader that will load program image files without the E/A cartridge. It provides an elegant way to go to a "heavy-duty" program should the need arise.

What can I say? Everything worked as the documentation said it would and I encountered no problems with the program. It is very straightforward and the program execution is flawless. It has to be an "A" — it delivers what it promises without any problems.

Ease of use: Triad is one of the simplest programs to use that I have seen in quite some time. The program can be configured easily to fit into the parameters each user needs. Most selections are by a single keystroke. The function keys are easy to understand and the common keypresses are consistent throughout the program. For example, FCTN-6 executes the chosen action whether it is for a file transfer or to execute an operation in the disk manager section. The FCTN-9 keypress will always take you back to the main menu. It is simple to sit down and briefly scan the documentation and successfully use the program with a minimum of preparation.

Documentation: The program comes with a 21-page booklet that thoroughly explains all aspects of its use. Each of the three parts is explained in detail. The individual functions within each of the program segments are explained in a paragraph or more or text.

What might be the most intimidating part of the program — the configuration section — is explained at length. Each prompt is explained in detail and when you reach that point in the program and documentation, a table is provided with the hexadecimal

(See Page 41)

Superbasic

A superb tool for XBASIC programmers

By JOHN KOLOEN

Superbasic, by Steven Karasek, has been around since 1987, but for one reason or another it hasn't enjoyed wide distribution. Perhaps one of the reasons is that it includes a hardware protection device that prevents the 22-sector Superbasic program from being used without the device. A plug is attached to the joystick port prior to loading Superbasic. Without the plug, the program won't load.

This method of protection is used in the PC world, but such "keys," as Karasek refers to them, usually plug into a parallel or RS232 port. In any case, the keys are generally very effective at protecting the author's software distribution rights since the software is useless without the hardware protection device.

The most likely reason as to why Superbasic is such a well-kept secret is that it simply hasn't been exposed to the TI community. (It is scheduled to be shown at the Lima User Group fair in May.)

Superbasic isn't another version of Extended BASIC — no, there aren't any new graphics commands. In fact, it runs out of Extended BASIC. However, it does a nice job of enhancing Extended BASIC for programmers, regardless of their proficiency.

Superbasic adds several commands to Extended BASIC and supports 32 user-programmable keys. It resides in low memory after loading and all of its features may be accessed instantly at any time. Because of its memory location, it doesn't use any user-accessible RAM.

Most of Superbasic's functions are accessed without interfering with Extended BASIC programs in memory. A command such as DIRectory can be issued at anytime without interfering with the program in memory. DIR 2, for example, results in a directory of DSK2 appearing on the screen. After the directory is finished, any key press returns the user to the point at which the directory call was initiated. One doesn't have to think long to discover how useful it is to call a directory without losing the program in memory.

As one would expect, commands such as DEL, RENUM, JOIN, ENTER and EDIT

Review

Report Card

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

Cost: \$25

Manufacturer: Steven Karasek, 855 Diversey, St. Louis, MO 63126

Requirements: Expansion memory, disk system, Extended BASIC

do have an effect on the program loaded into memory. If they didn't, these powerful commands would be useless.

```

.=RUN\
A=DATA\
B=ENTER "ISK1. BATCH"\
C=COPY "ISK1.
D=DISPLAY AT(
E=ENTER"ISK1.
F=FORB
G=GOTO\
H=CALL HCHAR(
I=INPUT\
J=CALL JOYST(
K=CALL KEY(
L=LIST "ISK1. CHECKOUT"\
M=CALL SOUND(
N=RENUM M,M,NEW,INCR
O=OLD ISK1.
P=PRINT\
Q=QOFF
R=RUN\
S=SAVE ISK1.
T=TYPE "ISK1. SOFTKEYS"
U=UPDATE
V=CALL VCHAR(
W=RUN"ISK1. LOAD"\
X=CALL LINK("INSKEY",64+ASC("
Y=TYPE"ISK1.
Z=LIST\
.= "PIO"
;:::
==CALL LINK("QOFF")\
8=DIR\
9=COPY"ISK1.

```

Fig. 1: Softkeys default file from Superbasic

Here is a list of the commands and their operations:

- DEL m-n deletes a range of line numbers between m and n;
- RENUM m,n,new,(increment) resequences part of an XBASIC program. RENUM 100,200,1000,5 moves lines 100 to 200 to a place starting at line 1000 and incremented by 5;
- JOIN n joins two XBASIC lines to save space;
- FIND allows the user to locate patterns in programs. It is initiated by the slash character. For example, /PRINT would locate all lines that include the word GOSUB;
- TEXT is similar to the FIND command but is used to locate text and is able to distinguish between THEN as used in an IF-THEN statement and "THEN" as used in a sentence;
- DIR n was explained above;
- TYPE "filename" displays a DV/80 file on screen;
- COPY "filename1" TO "filename2" copies a DV/80 file to another file or to a printer (if a disk drive isn't specified, it defaults to the last drive number used);
- APPEND "filename1" TO "filename2" adds the contents of a DV/80 file to a second file;
- RENAME "filename" TO "filename2" renames a file on a disk and can be used with any file type, including programs;
- LOCK "filename",n turns on write protection for a file on drive n;
- UNLOCK "filename",n unprotects file;
- QOFF disables the FCTN-QUIT key;
- QON enables the FCTN-QUIT key;
- ENTER "filename" takes a DV/80 file merges it into program memory. The lines are added to the program already in memory and may be saved as a program. This powerful utility allows you to load text files and save them as programs;
- EDIT "filename" is used to edit a DV/80 file without leaving XBASIC. It loads the file into memory with each line preceded by a line number. This allows you

(See Page 38)

SUPERBASIC—

(Continued from Page 37)

to use XBASIC and Superbasic commands to edit a text file;

- **WRITE** "filename" is used to write the file you are EDITing to disk without the line numbers;
- **KILL** turns off Superbasic.
- **INSKEY,n,string** is used to replace a single softkey definition, where n is the ASCII code for the key and "string" is the new key definition.

Many of the above commands may be accessed from within programs using **CALL LINK** commands.

Each of the 32 user-programmable keys, called Softkeys, can include a string of up to 30 characters. The key definitions are written to a DV/80 file. (See Fig. 1 for a printout of a Softkey file.) In addition, there are six new function keys that perform the following:

FCTN-5: Backwards tab (one-half line)

FCTN-6: Tab (one-half line)

FCTN-7: Lists the names of the new commands to the screen

FCTN-9: Clear to beginning of line

FCTN-0: Clear to end of line

FCTN-: Recalls the last file name used in conjunction with **OLD** or **SAVE**

CTRL-I-6: Directory of drives I-6

Those who are keen on translating BASIC programs, say from a PC to the TI, will find the **ENTER** command useful. By saving the BASIC program as an ASCII file, the user can "import" the file into Superbasic with this command. Of course, when Superbasic outputs the file in TI program format, untranslatable lines won't run. Such commands as **MID\$** will have

```
!FILE 'BATCH'
!FETCH PROGRAM
OLD DSK1.CHECKIN
!SAVE IN MERGE FORMAT
!TO BE USED BY CHECKSUM PROG
SAVE DSK1.CKSMINPUT.MERGE
!RUN CHECKSUM PROG, MODIFIED
!FOR FIXED INPUT/OUTPUT WITHOUT
!PROMPTS
RUN"DSK1.CHECKSUM"
!DO A 'NEW', MERGE CHECKSUM OUTPUT
!INTO EMPTY MEMORY
!CHECKSUMMED PROG NOW IN MEMORY
NEW
MERGE DSK1.CKSMOUTPUT
!PURGE UNNEEDED FILES FROM DISK
DELETE"DSK1.CKSMINPUT"
DELETE"DSK1.CKSMOUTPUT"
!OPERATOR INSTRUCTION: 'LIST' DOES
!NOT WORK RELIABLY IN BATCH
!PRESS <CTRL>L TO LIST TO DISK AS
!LIST "DSK1.CHECKOUT"
```

Fig 2: Batch file executed by Superbasic

to be converted manually into a TI equivalent before the program is saved. The same goes for graphic commands. The **ENTER** command works similarly to the **MERGE** command in that the file is merged into any existing program in memory. By typing **NEW** before using the **ENTER** command, however, the command works like **OLD** in TI BASIC.

The version of Superbasic that I've been using is being updated to include **PEEKV** and **POKEV** commands, as well as a **FORMAT** command to initialize disks.

As a bonus, Superbasic also comes with the capability of processing batch files. The

batch file is written in DV/80 format and run through Superbasic. (See Fig. 2 for an example).

Ease of Use: Superbasic takes a little work to learn but it's pleasant work. I found myself getting excited with each new "trick" I discovered, whether redefining Softkeys or playing around with the **ENTER** command. Everything works in a logical fashion.

Documentation: The documentation comes as a file on the distribution disk. It is thorough in terms of listing Superbasic's features and in most cases includes an example of how to use each command or function. The printout is six pages of single spaced text. It's definitely not fancy, and you have to read it thoroughly to make sure you don't miss anything. No mention is made of compatibility with the Geneve. It tried it, plugging the key into the 9640 joystick port, and then loaded the program. It worked fine for awhile and then the keyboard locked up. As a result, I can't recommend it for use with the Geneve at this point.

Value: I highly recommend Superbasic to anyone who programs in Extended BASIC. It has a lot to offer, and the price of \$25 is hard to beat. Although I have a little hesitation regarding the hardware protection device, I understand full-well why it is necessary. If this thing weren't protected, it would be up on a lot of bulletin boards overnight, and the author probably would receive little for the effort he put into his program.

USER GROUP UPDATES

This list contains updates and additions to our user group list, published beginning in May of 1987.

Colorado

Rocky Mountain 99ers, 232 West 4th Ave., Denver, CO 80233 (new address). Richard Gieseler, president. Meets second Tuesday each month at 2005 S. Milwaukee St., north of Evans Ave. Doors open at 7 p.m. with meeting at 7:30 p.m. Park in the lot on the west side of the street.

BBS (303) 277-1447 (24 hours).

Florida

Miami Users Group, 115 N.E. 151 St., Miami FL 33162 (new address). About 40 members. BBS (305) 386-8295.

Outside U.S.

United Kingdom

East Anglia Region 99ers Group, c/o SSGT Donald S. Copeland, 2164CS, PCS Box 3596 APO NY 09755-5371 (U.S. address); or Jufreve, Snape Rd., Knodishall, Saxmundham, UK IP17 1UT. Monthly newsletter.

TIUG-TI99/4A Users Group UK, c/o Stephen Shaw, 10 Alstone Rd., Stockport, Cheshire, England SK4 5AH. International Reply Coupons (available at post office) or \$1 bill would be welcome with correspondence to help defray overseas costs. Quarterly newsletter (write for overseas rates) and software library, 186 members.

PBox Prototype Board

Hardware hackers will like this

By TONY LEWIS

If you have toyed with the idea of developing a new drop-in card for the Peripheral Expansion Box, your choices of media up until now have been perfboard or make-it-yourself printed circuit boards (PCBs).

Now the TI community has an exciting product available to assist hardware hackers when they are creating new cards and circuits for the PBox. Scott Coleman and John Willforth got together, along with a little design help from an original Texas Instruments prototype board, and have created the new PBox Prototype Board. This product promises not only to speed up the development process, but provides a convenient way for you to build circuits or kits designed by others.

Performance: The new PBox prototype card is a professionally designed printed circuit board, double-sided, with plated through holes and gold-plated edge connectors. As noted, it is patterned after the original TI prototype board used to develop cards for the PBOX, but has some enhancements. The card fits great into the box, and can be used either bare or with a clamshell cover. As noted in the drawing there is plenty of room for various chips. A "memory" section allows for up to 8 RAM/ROM chips, with individual chip selects; next to this is an area for about 15 20-pin general-purpose chips. In back are some staggered holes to allow one to bring various signals to the outside world via cables, or multiple position plugs.

The interface chip section is already laid out for use with '244 and '245 chips such that the address and data lines wind up neatly arranged toward the center of the board. This keeps things simple when trying

Review

Report Card

Performance	A
Ease of Use	A-
Documentation	C
Value	A-
Final Grade	B+

Cost: \$35

Available from L.L. Conner Enterprise,
1521 Ferry St., Lafayette, IN 47904Requirements: Peripheral Expansion
Box

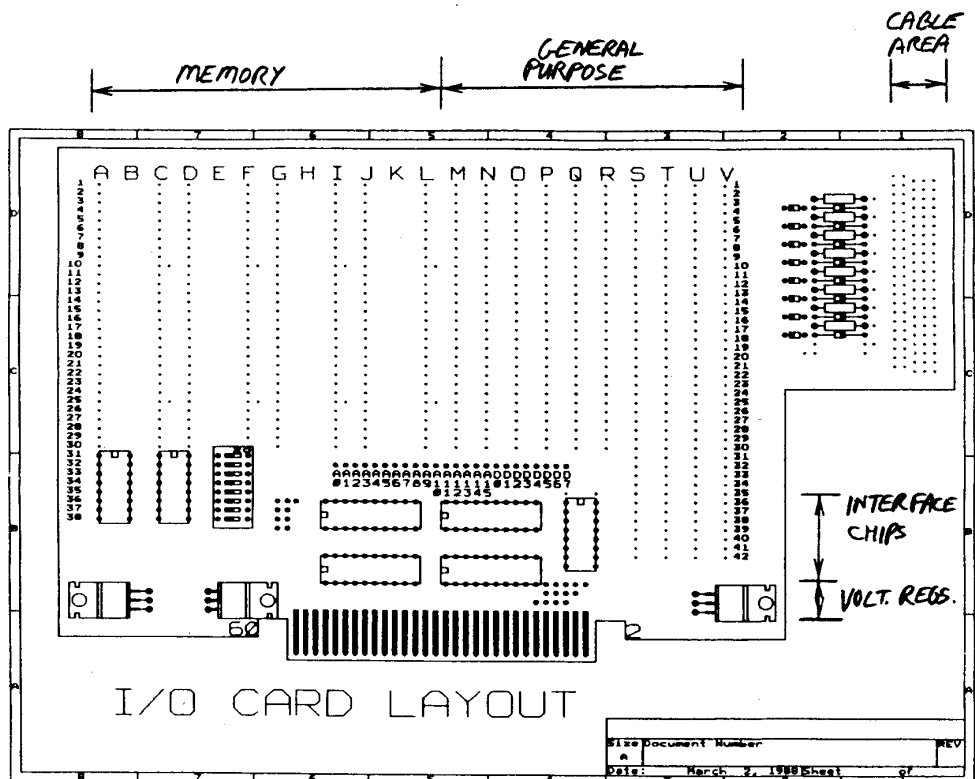
to route these signals elsewhere on the board. Positions are also already established for up to three voltage regulators (+5V, +12V and -12V), and for the LED used to indicate that the card is working. A nice feature is the marking of the vertical columns of holes with letters in the general

purpose area. This helps the builder track exactly which hole gets which signal, an important consideration when you switch from the "chip" side to the "wire" side in looking at the card. Less well defined on the card are the interfaces for some of the control signals, like -RDBENA.

Ease of use: You can put circuits on the board in two basic ways: wire wrap and soldering from point to point. Wire wrap is recommended for quite a few reasons. It is easier to undo wire wrap if mistakes are made. Some people think it is quicker to wire wrap (although I'll race anybody with my trusty soldering iron). And you are just about limited to wire wrapping for complex circuits, because there is only one hole per signal for address, data and control.

For example, what if your circuit needed to send A15 to three different spots, and you were soldering from point to point? You'd have to solder three wires to the same

(See Page 41)



Micro-Reviews

Overlays, 'phonebook' gain approval

By HARRY BRASHEAR

The following comments do not necessarily reflect the views of MICROpendium Magazine or its staff.

Ratings for the software reviewed in this column will be 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.

★★★★

KEYBOARD OVERLAYS

The four-star rating on this item is based on product value, since it's NOT a program.

B.J. Mathis of the Southwest 99ers sent me this nifty keyboard overlay. I'm sure she didn't expect it to show up here, but I think it deserves recognition.

The overlay comprises the five most worn key-guides in your cartridge collection, TE-II, Editor Assembler, Multiplan, TI-Writer and General Console Overlay. It's "photographed" on a heavy-duty plastic sheet. The CTRL key functions are in red while the FCTN key functions are in black. You could cut them apart, but I decided to leave it as is. (Maybe I won't lose the parts again as I did so many years ago.) The price is just right — \$3 each or five for \$10. At that rate you can order a bunch of them for your group. Also, they seem like they would make a great item to sell at fairs.

Send money to the Southwest Ninety-Niners, P.O. Box 17831, Tucson, AZ 85730.

This is a great group folks, so let's all give 'em our support.

★★★

THE COMPUTER PHONEBOOK

Yes, I know, there are a lot of mail list programs, but I think this one deserves a look anyway. It's super cheap (\$5), and has some nice features. As usual, you can edit names, change, delete, sort them, etc. You can find a single name and print it to a label, or the whole file can be printed at once. You can also view just the names on the screen if you forget a spelling.

The program has nice graphics, including inverse characters for the selected function, and one of the menus is done in neat little icons. Another thing I liked was the fact that the author, Brian Doornbos, gave a wide selection of printer types in the program, so it should work for just about anyone.

The program is done in Extended BASIC and seems to have enough error traps to keep it from crashing if you mess up on your I/Os.

The only thing I thought it might use was a pre-scan to speed the start-up along, it's quite a large program. A selection in label size might also be nice, but you may find this has already been done by the time you get it.

Send \$5 to: Brian Doornbos, 13055 Dahlia Circle Apt. 213, Edin Prairie, MN 55344. He will supply disk and return postage.

★★★★

ST. VALENTINE'S DAY CARD

My own title would be: *Another Gift from Ray Kazmer to the TI Community*. Certain programs have become classics in our community, and, Ray's *Woodstock* Christmas card a couple of years ago is one of them. Now he's done it again ... same bird, different day.

Woodstock's girlfriend, Penelope, has been captured by Grog, a real nasty character looking to have fricassee of Penelope for dinner. You are intrusted to help him find and rescue her from Grog's maze of caves.

You can direct the search via keys or joystick, but it isn't just a matter of running around a maze. The little bird tends to loose energy and you are always looking for hamhocks and Perrier to build it up again. There are a few locked doors that require magic keys to open, and because of Woodstock's erratic flight, you keep bumping into things and getting whipped out. Walking is usually better than flying, but sometimes you *have* to fly to get across a chasm.

One of the neatest wrinkles is the use of space teleporters that pair up to get you from one point to another. I also found a

number of other little surprises as I went along. A couple of these turned the air around the computer a little blue, but all in fun.

There is a high score keeper in the game, and that will come in handy because the whole family is going to want to get in on the action. There's just nothing like Ray's super graphics to keep you interested.

Send \$7 to: Ray Kazmer, 13225 Azores Ave, Sylmar, CA 91342. If you send a disk and SASE you can get away with just \$5.

★★★

THE 1989 KBGB GIRLIE CALENDAR

There I was, lamenting over the fact that it was the ninth of January, and I couldn't prove it ... NO calendar. I called a friend to see if he had a calendar program that I could use, and I could HEAR his eyes light up. "Boy, do I ever," he said.

We set up for downloading and he sent me 1200-1300 sectors of files. I read the short file of documentation and turned on my printer. I also checked to make sure there were at least 39 sheets of paper in the feed stack. (Each month requires three pages, plus the cover.)

I should point out that the pictures for the calendar are done in ANSI graphics. But, please, don't knock that unless you have seen it. In the hands of a master like Ken Gilliland, this type of art is as good as any.

I started my printer up and turned out a month at random first. (I believe it was Miss February) Verrry nice! You are allowed to print one month at a time or the whole thing, so after the sample, I let'er rip.

All of the artwork is really nice and Ken did most of it from scratch. There's a nice calendar under each picture that includes all the holidays we know and a bunch we never heard of. There is also a bit of philosophy here and there where space permits on the calendars. This is definitely my choice for wall hanging this year.

The only thing I didn't like about it was that the group name and fairware offer appears on each page. I think this should have been left to the cover only.

(See Page 41)

BOARD—

(Continued from Page 39)

hole, which is a lot harder and messier than you would think. (An alternative is to place wire wrap sockets in appropriate areas; with their long "legs," you can still solder a multitude of wires to the same "leg.")

In any case, once you have wired and debugged your board, you can transfer the design to a more permanent board or just leave it on the prototype board if it is a one-shot deal. If you are going to use the board over and over for various prototype circuits, you should avoid soldering as repeated heat will damage the copper traces and pads. The layout of the board accommodates static RAM/ROM/EPROM/EPROM with ease since the address, control and data lines are arranged in standard format. Having the hole columns marked with letters helps a lot, too, particularly if you are trying to build a kit or circuit from others' plans. As with all PBox cards, though, you cannot reach most of the card once it is installed in the PBox. (See the article on Page 29 to learn how to remedy this situation.—Ed.)

Documentation: This is the only area where this product really falls flat. The booklet I got with my card was a relatively skimpy affair, done in a small 5½x8-inch size with reduced size typing. Not much is here in the way of assisting novice or intermediate developers in designing their own cards. But a conversation with John Willforth and a note in the booklet confirm that the authors intentionally kept things brief instead of trying to be all things to all people. This is not to say that there is not good information in the booklet, because it certainly has some valuable stuff on the 4A, Geneve and /8 signals. But be advised that less experienced builders will have to have copies of the TI PBox Tech Manual and the Bunyard Manual (for starters). My main gripe is that there is not a full drawing of the whole cards to help the user plan how he or she is going to place the chips, a badly needed addition. (The card drawing shown here was provided separately.)

Value: For a full double-sided prototype card with dozens of plate-through holes, \$35 is not too bad a price. Standard PCBs with plate-through holes and gold-plated edge connectors cost a pretty penny, particularly in small runs. And your only other choices are perfboard from Radio Shack

or PCBs you make yourself (not an easy task).

Conclusion: I believe this card is just the ticket for people who want to develop prototype circuits for the TI PBox quickly and reliably. This is important to an "orphan" community because new hardware stimulates further interest and development from more members, thereby keeping our computer system alive and growing. With more details and a better format for the documentation, the PBox Prototyping Board could be considered a top-notch product.

MICRO-REVIEWS—

(Continued from Page 42)

Oh yeah, by the way, the front cover is a joke. It's a stick figure with greatly enlarged ... err ... ah ... well I guess you'll have to see it to believe it. Send \$10 to: Ken Gilliland, 7647 McGroarty Street, Tujunga, CA 91042.

Just a couple of notes to finish up this month.

As a reminder, TI-BASE is now out in version 2.0! The time to buy if you have been waiting for bugs to be worked out is at hand.

After reviewing Rocketman (December, 1988), I went on a quest for the best program I could find for your checking account. I found it, I think, and it's called Checkbook Manager-III. The menu consists of 25 different selections and every one of them is practical. The docs are good, the graphics are fantastic (40-column), and it's about as professional as you can get. I intend to do a major review on this program in the next month or two. In the meantime, if you don't want to wait for that, the address is W. Irving Crowley, Lost Canyon Rd., Pine Level, AL 36065. The cost of this program is \$9 and you must designate your drive configuration.

TRIAD—

(Continued from Page 36)

color codes right there in front of you.

In short, the documentation is thorough, simply written and easy to understand. A few minutes spent reading it will leave no doubt about how the program works. It is

the simplest and best I have seen lately.

Value: Now we come to the most difficult part of this review: how to determine the value of a program that isn't new or innovative in its function. In fact, more powerful programs of the same type are available. The difference is that nothing currently offered takes such a simple "plain vanilla" approach to the combination of an editor, disk manager and terminal emulator package. The program's main value would be for the novice who might be just a bit intimidated by the multiple keypresses of FASTTERM or isn't ready to step up to something more complicated. Then, there is the niche this particular program fills in my library for a "spur of the moment" terminal program.

To be quite honest, if you are looking for something with all the "bells and whistles" of a full-blown terminal program, you are going to be disappointed. By the same token, it does a passable job as a text editor and is more than adequate as a disk manager. So, if you are in the market for a simple combination program, Triad is for you.

On the other hand, if you want auto-dialers, YMODEM file transfers, log-on macros and all the features of a full text editor, you would be better off to consider something else. As always, try to match your programming needs with the characteristics of the software package. Remember, the choice is up to you.

Final grade: The program delivers exactly what it promises — a plain and simple disk manager/terminal/editor package that is entirely memory-resident. It is easy to use and the documentation is concise and well-written. The program performs well and there are no discernable problems with its operation. In essence, what you see is what you get. Remember that it is without frills and "extras" so make sure it is what you want before you choose to buy it.

Like the rest of Wayne Stith's programs, Triad is professionally done. Whether you buy it out of curiosity to see if all three of these options are really contained in 8K of memory, or if you are looking for a simple "quick and dirty" multifunction program, you will not be disappointed by sloppy programming. Everything about the program is professional and complete. I found a place in my library for it!

Newsbytes

New address for company

New address for the Bunyard Group is P.O. Box 62323, Colorado Springs, CO 80962-2323.

The company is the publisher of the Bunyard Hardware Manual, which was reviewed in the October 1988 MICROpendium.

'Unofficial' interface standard in works

Tony Lewis of Raleigh, North Carolina, says he is contacting "the top hardware and software people in the TI community" to assist in development of a new "unofficial" TI interface standard.

He says the purpose of the standard is to assemble as much useful information as possible in one document to assist persons interested in developing new peripheral products for the TI99/4A and its Peripheral Expansion Box.

He says he hopes to have the standard written and ready for release by the second quarter of 1989 as a manual to be sold "at a reasonable price." The manual is specifically geared toward the software and hardware design of new cards and add-on products.

Lewis says two parts are planned: a hardware section covering development of the electronic circuits commonly used in TI system products and a discussion of the various 9900 signals and interface requirements; and a software section covering writing code to access memory, CRU bits and development of Device Service Routines.

Persons interested in obtaining more information about the interface standard may contact Lewis at 409 Drolmond Dr., Raleigh, NC 27615; CompuServe 73357.1730; or Delphi TONYLEWIS.

Faire to include San Francisco group

The San Francisco 99ers will provide a booth at the West Coast Computer Faire March 17-19 at Brooks Hall in San Francisco, California.

Neil Wood said the group would be at

Booth 733. He noted that the group's participation in the event last year received publicity in Britt Hume's computer column, published in the *Washington Post* and other newspapers.

C-CAD acquired by rehabilitation group

The Center for Computer Assistance to the Disabled has been acquired by REACH (Rehabilitation, Education and Advocacy for Citizens with Handicaps).

Jack Kishpaugh, C-CAD executive director, said REACH would assume most of the administrative and fund-raising activities of C-CAD.

For further information, contact C-CAD, 2501 Ave. J, Suite 100, Arlington, TX 76006-6191 or call Cheryl Keifer at (817) 870-9082.

Calgarian runs BBS

David Lovering of the TI-Runners users group in Calgary, Alberta, Canada, says he is running a Paradigm BBS at (403) 285-1024. The board operates at 300, 1200 and 2400 baud, 8N1.

He says the BBS has a 40-track drive and 80-track drives, plus a Myarc RAM card. He says he hopes to find a "personality card (cheap please) and then get a hard drive going."

He adds that the TI-Runners has a 9640 SIG, and says, "If there are any Tiers in Calgary besides the Hard Core Few of us who have joined the TI-Runners, who are still using a TI and a modem who also get MICROpendium, *please note: we are still alive* in this neck of the woods."

Tigercub offers public domain disks

Tigercub Software announces the availability of more than 200 single-sided, single-density disks of public domain software, "as full as possible," according to Jim Peterson of Tigercub.

He says the programs are selected by category, with all BASIC programs converted to run in Extended BASIC, instructions added when necessary and "all obvious bugs corrected." An autoloader by full program name is included on each disk, he

says. Disks are \$1.50 each, postpaid.

Peterson says no fairware will be offered without the permission of the author.

Send a self-addressed stamped envelope for the list, or \$1 for catalog listing all titles and authors, to TI-PD, 156 Collingwood Ave., Whitehall OH 43213.

Rocky Mountain 99ers elect officers

New officers for the Rocky Mountain 99ers are Richard Gieseler, president; Keith Amann, vice president; Wendy Humphreys, secretary; and Bob Charlson, treasurer.

Address for the club is 232 West 4th Ave., Denver, CO 80223.

John Guion relocates

New address for John Guion, manufacturer of the Multi-Mod, is P.O. Box 4628, Lubbock, TX 79409.

The Multi-Mod is a plug-in upgrade for Triton's Super Extended BASIC module.

Guion also markets TI RS232 and Disk Controller upgrade kits.

MICROpendium will take credit cards

MICROpendium magazine will now take new or renewal subscriptions through MasterCard or Visa credit cards.

John Koloen, publisher, says a number of subscribers had requested this additional service, particularly those in foreign countries who had to deal with exchanging currencies.

Credit card subscriptions are available by writing or calling MICROpendium with your card type, number and expiration date, along with address information, or online on Delphi's TI-Net as a service of Disk Only Software.

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

User Notes

Program uses arrow for selection

The following program, by Russ Stanton, of Alexandria, Louisiana, is a simple database whose most unique feature is the use of a moving arrow to make menu selections. The database program is used to demonstrate the arrow routine. The program requires Extended BASIC and a memory expansion. Documentation is included with the program.

```
1 DISPLAY AT(2,7)ERASE ALL: "
THE MOVING ARROW": : : : :
: "1) DOCUMENTATION": : "2) R
UN PROGRAM" !149
2 GOSUB 76 :: IF K=49 THEN 3
: : IF K=50 THEN 23 ELSE 2 !
120
3 CALL CLEAR :: PRINT " THIS
PROGRAM IS PRETTY": "SELF EX
PLANATORY. IT'S DESI-": "GNED
TO SAVE NAME'S, ADDRESSES": "
AND PHONE NUMBERS. ": : !071
4 PRINT "THE WHOLE IDEA OF T
HIS PRO-": "GRAM IS TO SAVE P
ROGRAMMING": "SPACE, AND TO H
AVE A PROGRAM": "THAT YOU CAN
CORRECT AS YOU": "GO. ": : !18
1
5 PRINT "BY ENTERING <R>, YOU
CAN BACK": "UP AND FIX YOUR
MISTAKE AT": "ANYTIME DURING
DATA INPUT. ": : "BY PRESSING
<ENTER> IT WILL": "JUMP TO TH
E NEXT LINE" !218
6 PRINT "WITHOUT DISTURBING
THE DATA": "ALREADY INPUTTED
ON THAT": "LINE. ": : !122
7 INPUT "PRESS ENTER TO CON
TINUE": A$ :: CALL CLEAR !080
8 PRINT " I ALSO FIXED IT W
HERE YOU": "SAVE OR LOAD FROM
DISKETTE. ": : "I RECOMMEND T
HAT YOU <RES>": "THE PROGRAM
WHEN YOU RE": "THROUGH. " !013
9 PRINT "<RES1,1> WILL SAVE
YOU SOME": "EXECUTION TIME. ":
: "NOW LET'S WALK THROUGH TH
E": "PROCEDURES. ": : !174
10 INPUT "PRESS ENTER TO CON
TINUE. ": A$ :: CALL CLEAR !12
7
11 PRINT "THE MENU SCREEN GI
VES YOU": "THREE CHOICES. ALL
```

```
OBVIOUS. ": : "OPTION 2 GETS
INTO THE HEART": "OF THINGS.
AFTER YOU HAVE": "FINISHED YO
U HAVE A CHOICE" !131
12 PRINT :: PRINT "OF CONTIN
UING OR GOING BACK": "TO FIX
SOMETHING. IF YOU": "JUST PRE
SS ENTER IT WILL PUT": "YOU I
NTO THE NEXT SELECTION" !070
13 PRINT "SCREEN, WHICH IS T
HE SAVE OR": "RETURN ROUTINE.
": : "IF YOU REMEMBER SOMETHI
NG ": "YOU SHOULD HAVE DONE,
OR": "YOU WANT TO CHECK ON" !
218
14 PRINT "SOMETHING PRESS OP
TION <3>. ": : !055
15 INPUT "PRESS ENTER TO CON
TINUE. ": A$ :: CALL CLEAR !12
7
16 PRINT "THIS LOOKS LIKE TH
E SCREEN": "YOU JUST CAME OUT
OF BUT IT'S": "NOT. IT'S A C
ALL SCREEN THAT" !128
17 PRINT "DISPLAYS WHAT YOU
HAVE DONE. ": : "THE NICE THIN
G ABOUT THIS": "ROUTINE IS IT
'S ABILITY TO": "MAKE CHANGES
TO WHATEVER IS": "ON DISKETT
E. " !075
18 PRINT :: PRINT "WELL HAPP
Y PROGRAMING. ": : "RUSS STANT
ON" :: INPUT "PRESS ENTER TO
CONTINUE. ": A$ :: CALL CLEAR
!131
19 PRINT "P.S. I JUST THOUGH
T OF SOME-": "THING ELSE. IF
FOR SOME ": "REASON YOU END U
P AT THE": "MAIN MENU SCREEN
BY ACCIDENT": : "PRESS OPTION
<2> TO GET" !197
20 PRINT "YOU BACK TO THE IN
PUT SCREEN. ": "THEN JUST PRES
S ENTER" !161
21 PRINT "UNTIL IT GOES": "TH
ROUGH ALL THE INPUTS. THEN":
"PRESS OPTION <3>. THE OLD":
"PROGRAM WILL RE-APPEAR AGAI
N. " !164
22 INPUT "PRESS ENTER TO CON
TINUE": A$ :: CALL CLEAR !080
23 ON ERROR 75 !084
24 GOTO 29 !108
25 S,K,A$,N$,AD$,C$,ST$,PH$,
I,X,Y !004
26 CALL KEY :: CALL SCREEN :
```

```
: CALL COLOR :: CALL CLEAR :
: FOR :: NEXT :: RETURN :: G
OSUB :: CALL HCHAR :: CALL C
HAR :: CALL LOAD !091
27 !0P- !064
28 CALL INIT :: CALL LOAD(-1
3806,16)!138
29 ! THE MOVING ARROW !031
30 ! BY RUSS STANTON !242
31 ! 5908 ORLEANS PL !105
32 ! ALEXANDRIA LA.71303 !08
5
33 ! VERSION 1 !026
34 CALL CLEAR !209
35 CALL SCREEN(12):: FOR I=1
TO 14 :: CALL COLOR(I,16,6)
:: NEXT I :: FOR I=0 TO 1 ::
CALL COLOR(1,16,6):: NEXT I
!157
36 DISPLAY AT(2,7)ERASE ALL:
"THE MOVING ARROW": : : : :
: : "1) GOTO PROGRAM": : "2) L
OAD PROGRAM": : "3) END PROGR
AM" !033
37 GOSUB 76 :: IF K=49 THEN
40 :: IF K=50 THEN 69 :: IF
K=51 THEN 38 ELSE 37 !204
38 CALL CLEAR :: FOR I=1 TO
14 :: CALL COLOR(I,2,8):: NE
XT I :: FOR I=0 TO 1 :: CALL
COLOR(I,2,8):: NEXT I :: CA
LL SCREEN(8)!092
39 DISPLAY AT(10,1): "GOING T
O DISK MENU....." :: RU
N "DSK1.LOAD" !110
40 DISPLAY AT(2,6)ERASE ALL:
"THE MOVING ARROW": : "TO MOV
E ARROW UP ENTER {R}": "TO MO
VE ARROW DOWN PRESS": "{ENTER
}" !131
41 DISPLAY AT(10,1): "NAME---
--->": : "ADDRESS--->": : "C
ITY----->": : "STATE&ZIP-->
": : "PHONE #->": : GOTO 4
4 !117
42 DISPLAY AT(2,6)ERASE ALL:
"THE MOVING ARROW": : "TO MOV
E ARROW UP ENTER {R}": "TO MO
VE ARROW DOWN PRESS": "{ENTER
}" !131
43 DISPLAY AT(10,1): "NAME---
--->&N$: : "ADDRESS--->&A
D$: : "CITY----->&C$: : "ST
ATE&ZIP-->&S$: : "PHONE #-
-->&PH$ !025
```

(See Page 44)

User Notes

(Continued from Page 43)

```

44 CALL CHAR(128,"000804027F
020408"):: CALL CHAR(48,"003
8444C54644438")!163
45 DISPLAY AT(24,1): "ENTER-"
!000
46 X=12 :: Y=1 :: GOSUB 59 :
: X=10 :: Y=1 :: GOSUB 58 !0
69
47 GOSUB 60 :: IF A$="" THEN
48 :: N$=A$ :: DISPLAY AT(1
0,13): N$ !240
48 X=14 :: Y=1 :: GOSUB 59 :
: X=10 :: Y=1 :: GOSUB 59 ::
X=12 :: Y=1 :: GOSUB 58 !17
2
49 GOSUB 60 :: IF A$="R" THE
N 46 :: IF A$="" THEN 50 ::
AD$=A$ :: DISPLAY AT(12,13):
AD$ !076
50 X=16 :: Y=1 :: GOSUB 59 :
: X=12 :: Y=1 :: GOSUB 59 ::
X=14 :: Y=1 :: GOSUB 58 !17
8
51 GOSUB 60 :: IF A$="R" THE
N 48 :: IF A$="" THEN 52 ::
C$=A$ :: DISPLAY AT(14,13): C
$ !206
52 X=18 :: Y=1 :: GOSUB 59 :
: X=14 :: Y=1 :: GOSUB 59 ::
X=16 :: Y=1 :: GOSUB 58 !18
4
53 GOSUB 60 :: IF A$="R" THE
N 50 :: IF A$="" THEN 54 ::
ST$=A$ :: DISPLAY AT(16,13):
ST$ !156
54 X=16 :: Y=1 :: GOSUB 59 :
: X=18 :: Y=1 :: GOSUB 58 !0
81
55 GOSUB 60 :: IF A$="R" THE
N 52 :: IF A$="" THEN 56 ::
PH$=A$ :: DISPLAY AT(18,13):
PH$ !132
56 X=18 :: Y=1 :: GOSUB 59 !
233
57 DISPLAY AT(24,1): "ANY COR
RECTIONS?----->(Y/N)" :: AC
CEPT AT(24,27)VALIDATE("YN")
SIZE(-1)BEEP: A$ :: IF A$="Y"
THEN 45 ELSE 61 !128
58 CALL HCHAR(X,Y,128):: RET
URN !196
59 CALL HCHAR(X,Y,32):: RETU
RN !141
60 ACCEPT AT(24,7)BEEP: A$ ::
RETURN !246

```

```

61 DISPLAY AT(2,8)ERASE ALL:
"DISK ROUTINE" :: : : : "1)
SAVE FILE" :: "2) LOAD FILE"
: : "3) RETURN TO PROGRAM" ::
"4) RETURN TO MENU" !231
62 GOSUB 76 :: IF K=49 THEN
63 :: IF K=50 THEN 69 :: IF
K=51 THEN 42 :: IF K=52 THEN
36 ELSE 62 !221
63 DISPLAY AT(2,8)ERASE ALL:
"SAVE ROUTINE" :: DISPLAY AT
(22,1): "RETURN TO PROGRAM---
-{ENTER}" !127
64 DISPLAY AT(23,1): "ENTER F
ILE NAME.....": "ENTE
R-" :: GOSUB 60 :: IF A$=""
THEN 40 ELSE 65 !031
65 OPEN #1: "ISK1."&A$, INTERN
AL, OUTPUT, FIXED 192 !219
66 PRINT #1: N$, AD$, C$, ST$, PH
$ !029
67 CLOSE #1 !151
68 GOTO 34 !113
69 DISPLAY AT(2,8)ERASE ALL:
"LOAD ROUTINE" :: DISPLAY AT
(22,1): "TO RETURN TO MENU---
-{ENTER}": "ENTER FILE NAME .
.....": "ENTER-" !092
70 GOSUB 60 :: IF A$="" THEN
36 ELSE 71 !170
71 OPEN #1: "ISK1."&A$, INTERN
AL, INPUT , FIXED 192 !118
72 INPUT #1: N$, AD$, C$, ST$, PH
$ !019
73 CLOSE #1 !151
74 GOTO 42 !121
75 RETURN 36 !117
76 CALL KEY(0,K,S):: IF S=0
THEN 76 :: RETURN !154

```

TI Base patch

The following comes from Texaments and has to do with the company's TI Base database manager.

It is recommended that users of TI Base V2.0 add the following patch to their SETUP file. This patch should be placed after the first patch issued (PIV2.0) during December (1987).

```

CHANGE FFD2 8320 P2V2.0
CHANGE FFD4 DC84 P2V2.0
CHANGE DBFC 0420 P2V2.0
CHANGE DBFE FFD2 P2V2.0
CHANGE DC84 C83E P2V2.0

```

```

CHANGE DD4A 05CE P2V2.0
CHANGE DD4C 1000 P2V2.0
CHANGE DD4E CB41 P2V2.0
CHANGE DD50 0002 P2V2.0
CHANGE DD52 0380 P2V2.0

```

If these CHANGES do not appear in your SETUP file, follow this procedure to insure them into the file:

1. Load TI Base
2. Enter the command MODIFY COMMAND SETUP. Your SETUP file will then load into memory and be displayed for editing.
3. Use the insert line function (F4) to create new space.
4. Enter the CHANGES that appear in the SETUP file above.
5. After these CHANGES have been entered, press FCTN 8 to save the new SETUP file to disk.

This patch will correct an inconsistency found with packing databases with records larger than 255 characters.

Users are also warned not to use previous patches issues for earlier versions of TI Base with the version 2.0. All patches are designated by a numbering system found at the end of each CHANGED line. For example, PIV2.0 represents the first patch made to version 2.0 of TI Base.

Users who have problems with this modification may contact Texaments at 516-345-2134, 9:30 a.m.-5:30 p.m. (EST), Monday-Friday. Or, access the free, 24-hour Texament bulletin board at 516-475-6463.

Printer modification for Easygrader

This comes from John F. Cline, of Washington, Pennsylvania. He writes:

RE: Easygrader, User Notes (November 1988), for those who do not have subscript type, I have made a couple of changes to work with the TI Impact Printer.

In line 100, insert CHR\$(27);"A";CHR\$(10) to make your line spacing 10/72.

In line 110, insert TAB(10) and change TAB(60) to TAB(65) so as to center the printout on the paper.

In line 120, insert TAB(11) to line up the grades with the number of problems.

Here are the modified lines:

(See Page 45)

100 REM **TWO SPEECH UTILITI
ES BY DON SAWDAI** !165
110 REM TAKE THE "REM" OUT O
F LINE 130 IF USING XB !000
(See Page 46)

User Notes

(Continued from Page 45)

```

120 REM NOTE: XB REQUIRES MEM
ORY EXPANSION !034
130 REM CALL INIT !042
140 REM DETERMINE IF SPEECH
IS HOOKED UP !057
150 FOR SP=1 TO 5 !150
160 CALL LOAD(-27648,64)!119
170 NEXT SP !057
180 CALL LOAD(-27648,16)!116
190 CALL PEEK(-28672,SP)!233
200 SPEECH=0 !111
210 IF SP>170 THEN 230 !104
220 SPEECH=-1 !050
230 REM END OF ROUTINE !140
240 REM USE "IF SPEECH THEN
..." TO DO SOMETHING ONLY IF
SPEECH UNIT IS CONNECTED !1
003
250 IF SPEECH THEN 260 ELSE
320 !039
260 REM SPEECH IS CONNECTED
!225
270 FOR Z=1 TO 7 !079
280 READ SPEAK$ !047
290 GOSUB 1000 !059
300 NEXT Z !240
310 GOTO 330 !154
320 PRINT "THE SPEECH SYNTH
SIZER IS NOT HOOKED UP TO
THE COMPUTER." !200
330 END !139
400 REM SPEECH ADDRESSES !04
8
410 DATA 69H6,6BA0,3A32,20BB
!007
420 DATA 145C,69H6,2034 !234
1000 REM SPEAK WORD AT ADDRE
SS GIVEN IN SPEAK$ !100
1010 FOR SP=4 TO 1 STEP -1 !
003
1020 SP$=SEX$(SPEAK$,SP,1)!1
01
1000 SD=ASC(SP$)-48+7*(ASC(S
P$)>60)!078
1040 CALL LOAD(-27648,SD+64)
!207
1050 NEXT SP !057
1060 CALL LOAD(-27648,64)!11
9
1070 CALL LOAD(-27648,80)!11
7
1080 RETURN !136

```

TI-Forth oversight

Mike McCann, of McCann Software,

writes:

Question of the month: 'Why won't my 80-column TI-Forth work even after I typed in Lutz Winkler's 80-column Forth screen editor from MICROpendium (June 1988)?'

The answer has to do with a small oversight in the design of the TI-Forth command line interface. TI-Forth runs in 40-column text mode. If you have ever tried to get the screen to scroll up or down for an application you usually set up a buffer to hold one line of screen contents. With TI-Forth, they proceeded to allocate 40 bytes for the buffer, finish the scrolling code, and on to the next task which was converting the screen start, screen end and screen width constants to user variables which will allow for the screen to be moved around in the VDP space and, yes, for different width screens.

Now, along comes the smart guys with their 80-column screens and the first time the screen is scrolled in the new modes it sends 80-byte hunks to a 40-byte buffer. The things it overwrites don't leave too many clues as to what causes later bad behavior and crashes so the user curses Forth as that bad and dangerous language and goes back to BASIC or one of those languages with the double equal and double plus signs (I hate to type symbols and a double ampersand is enough to ruin my whole day).

For those with TI-Forth source code, the offending code is in the utility driver at the end and is as follows:

```

LINBUF BSS 40
KEYCNT DATA -1
CURCHR BSS 2
GRMSAV BSS 2
INTACT DATA 0

```

As soon as you see this code you assembly hackers will know why you got the GPLLNK lockups and why the cursor disappeared after scrolling on the bottom line, right?

Luckily, LINBUF is only referenced once in the code (in the scrolling utility) a couple hundred bytes above the buffer itself.

If you make a patch on screen No. 3 to let LINBUF operate right below INTACT — this is above the return stack space — and unless you are doing some humongous

recursion it should be okay to use this space. The implementation is left to the reader.

McCann adds, "If you hear of anyone with MDOS Forth, please send them my way." He can be reached at P.O. Box 34160, Omaha, NE 68134.

Converting consoles

This item appeared in the newsletter of the West Penn 99ers. It was written by John Drennen. Note that any hardware modifications are done at the risk of the user.

Getting around the Version 2.2 console has not been much of a problem with fully equipped systems. One could use the CorComp Disk Controller Card to bypass the V2.2 operating system and run non-TI cartridges. The GRAM Kracker by MG can also run non-TI cartridges by using a non-V2.2 operating system in its GRAM 0. Other GRAM cards may also be used. The CorComp GROM-Buster (\$30) has been the most attractive alternative for console-only users.

All of the above work, but why not get to the heart of the problem: GROM 0 (CD2155NL). By ordering the CD2155NL chip from TI, you can upgrade your V2.2 console to the standard console. On most of the consoles, this chip is in a socket, but I have come across a few in which this chip is soldered. Here is what needs to be done:

The part number is 1015960-1155. The cost from TI is \$3.80 plus tax and \$3 shipping. The phone number is 806-741-2265.

I have loaded the following modules and programs to confirm that this modification is complete and compatible with all software and hardware: Miner 2049er (a side-port module), Pacman, Donkey Kong, Word Writer, PDM 99, Junkman Jr., Super Duper, Plato, Tunnels of Doom, Adventure, Mini-Memory, Personal Record Keeping, Editor/Assembler, Microsoft Multiplan, TI-Writer, Extended BASIC, Paint 'n' Print, Big Foot, Home Control and Q*Bert, among others.

I have been using my converted console with no software or hardware problems. Hardware I use with it include GRAM Kracker, X-10 Powerhouse, Axiom Parallax, cassette recorder, Mechatronic

(See Page 47)

Classified

Software

CHECKBOOK RECONCILE

Balance to the penny every month. Rocketman Checkbook Program. See our program review in August 1987 MICROpendium. California Programs, 4426 Appian Way, El Sobrante, Ca. 94803. 415-222-1626. v6n4

TIGERCUB PROGRAMS

Over 120 original entertainment, educational, utility programs just \$1.00 each! Full disk collections \$5 each! Tips from Tigercub disks nos. 1-5 \$10 each. Nuts & Bolts Nos. 1-3 \$15 each. Catalog \$1, refundable. Tigercub Software, 156 Collingwood Ave., Whitehall OH 43213. v6n1

PUBLIC DOMAIN SOFTWARE

200 full disks, assembled by category, \$1.50 per disk! All converted to X BASIC. Send SASE for list or \$1 (refundable) for catalog, to TI-PD, 156 Collingwood Ave., Whitehall OH 43213 v6n12

Policy

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

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

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

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

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

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

Systems

FOR SALE

Geneve 9640, Myarc HFDC \$260. 40 Meg hard disk \$250. Myarc RS232 \$80. PEB w/TI controller, 32K, 2 DSDD drives \$150, Speech and Joysticks \$25. Software and more. Call Bret evenings: 412-687-9847. v6n1

Hardware

FOR SALE

Gram Kracker plus utilities 1/2 \$130. Gerry 414-284-9563. v6n1

Miscellaneous

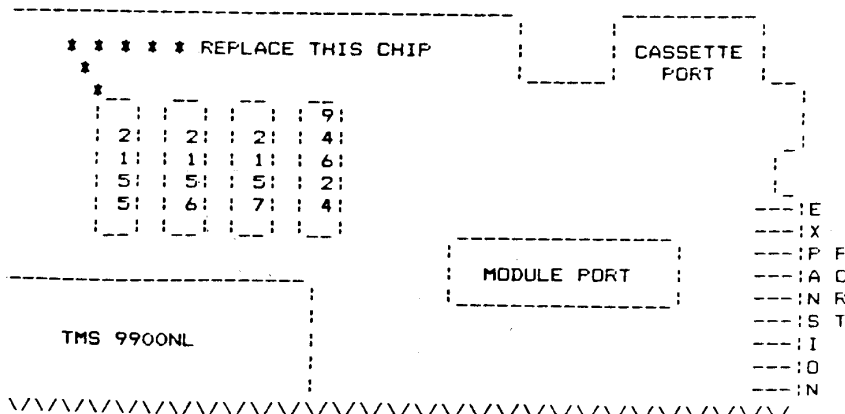
P-CODE CARD WITH ALL DISKS AND MANUALS	\$150
P-CODE CARD ALONE	\$ 79
FULL TI PE/BOX plus \$20 s&h	\$349
SPEECH SYNTHESIZER used	\$ 45
PARALLEL PRINTER CABLE 6'	\$ 15
WORD WRITER + W/PARALLEL CABLE	\$ 49
STAND ALONE DISK DRIVE "TI"	\$ 79
MYARC HARD CONTROLLER CARD new	\$300
STAND ALONE 32K MEMORY	\$ 59
TI ORIGINAL COLOR MONITOR	\$175
SERVICE MANUAL/CONSOLE & P BOX	\$ 25
AVATEX MODEM 1200HC	\$ 89
PACKARD BELL 1200	\$ 70
PLUS 5% SHIPPING CALL OR WRITE for complete list	
JIM LESHAR, 722 HUNTLEY DALLAS, TEXAS 75214, 214 821 9274	v6n1

User Notes

(Continued from Page 46)

EPROMer, TI and CorComp disk controllers and TI Speech Synthesizer.

Use the accompanying diagram to replace the chip. The chip may be marked CD2155 8327 DCHY. The "8327" is the date code.



ENORMOUS INVENTORY

TI 99/4A. Laser,

Apple & IBM Compatibles.

"Some Commodore and Atari Items. (No Catalog on Above Two Systems.)" Full Hardware & Software on All Other Systems. Complete Line of Computer Forms.

BRAATZS

Computer Services

719 E. Byrd St., Appleton, WI 54911. Catalogs \$2. MC/Visa accepted. 414-731-3478 (ORDER LINE ONLY) (Call 414-731-4320 after 6:00 P.M. Wisconsin time.) Custom made covers (send sizes). v6n6

The LEADING monthly devoted to the T199/4A

Subscription Fees

\$20 for 12 issues via domestic second class mail
 \$25.25 (U.S. funds) Mexican delivery
 \$27.50 (U.S. funds) Canadian delivery
 \$25.00 (U.S. funds) for 12 issues other foreign
 delivery via surface mail
 \$37.00 (U.S. funds) for 12 issues other foreign
 delivery via air mail

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

Address Changes

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

Back Issue Policy

Back issues of MICROpendium are available to sub-
 scribers only. Those wishing back issues may notify
 us of the issue(s) desired and include \$2 per issue
 desired in a check or money order or by credit card.
 (Minimum credit card order is \$9.) No shipping
 charge in U.S. and Mexico; Texas residents add
 7.5% sales tax. Shipping charge of 30 cents per
 issue to Canada. For other foreign delivery, add 50
 cents per issue surface mail, \$2 per issue air mail.
 No discounts on orders of sets. All prices U.S. funds.
OUT OF STOCK: Vol 1, nos. 1-2, Vol 2, no. 1

Tell us about it

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

1. _____
2. _____
3. _____
4. _____

Other suggestions: _____

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

Exp. Date _____

Card No. _____

Minimum credit card order is \$9

Signature _____
(required on credit card orders)

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

Name _____

Address _____

City _____

State _____ **ZIP** _____

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

v6.n1