

1982

AMERICAN SOFTWARE DESIGN & DIST. CO.

Quality Software for the TI 99/4 & TI 99/4A

BASIC LANGUAGE ENTERTAINMENT



Space Battle 2056

In this exciting space game you command an Earth force and defend a helpless fleet of ships and fuel station against an alien force bent on your destruction. It places you against aliens controlled by the computer. Random factors make each game a different contest. Your cunning as a commander and a little luck decide the outcome! Ages 12 to Adult. Basic Language. Cassette \$14.95, Disk \$15.95.

Users-Group rating ****



Laser Shield

Laser Shield is a game where you try to save 4 cities and protect your laser base from incoming missiles. It takes quick reflexes and presence of mind to destroy the missile with your laser. There are three waves of missiles, each one harder to destroy than the previous one. This is an Arcade style game, with two skill levels. Ages 12 to Adult. Basic Language. Cassette \$14.95, Disk \$16.95.

... one that we are sure you would like to add to your collection.

Users-Group Newsletter August 10, 1981



Land on Mars

Land on Mars is a challenging game in which you try to pilot the Martian lander to a safe landing on Mars. As pilot you must watch your instruments, watch where you are going, determine direction for firing the engines, and choose how much power the engines should use. After landing, you blast back into space and try to dock with the orbiter. Hundreds of landscapes and the option of weak or strong gravity provide a continually changing challenge. A hungry Martian dragon is available for those who think they have the game mastered. Ages 12 to Adult. Basic Language. Cassette \$12.95, Disk \$14.95.

EDUCATIONAL



Mr. Frog

Users-Group rating ****

This program consists of three educational games for the youngest members of the family. Letter Hop is a letter recognition game in which the child presses the "space bar" until the frog hops to the rock containing the correct letter. Rock Hop is a counting game in which the child must determine how many hops to a rock scattered among some lily pads. In Frog Race you race against a friend or the computer. Great graphics and music. Ages 3-7. Extended Basic Language. Cassette \$14.95, Disk \$16.95.

... We are glad to see programs written for this age group and it is important that the quality of the program not be sacrificed because of the age of the user. Mr. Frog is a quality program that provides the stimulation to learn.

*reviewed in International Home Computer
Association - April 1982, No. 3*



Spelling Teacher

Spelling Teacher is designed for students to enter their weekly spelling list from school. After you enter the words you want to study, the spelling teacher will flash the words back for you to spell. Flashing the word back for a fraction of a second actually reinforces correct spelling. The computer remembers the misspelled words and goes over them with you to help you learn them. A speech option is included for those with the speech synthesizer and terminal emulator II. Basic Language. \$19.95 Cassette, \$21.95 Disk.

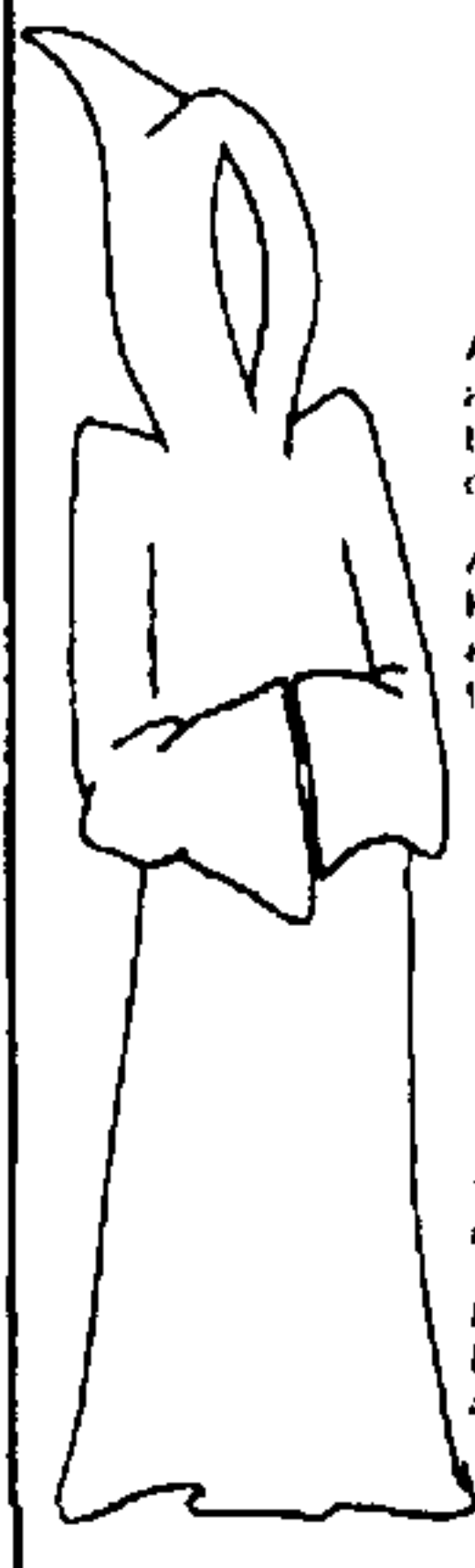


Barnyard Fun

Barnyard Fun is a fast moving game for children. It challenges the memory using familiar farm animals hiding behind barns. It is an easy game to play and a difficult game to master.

This game will provide hours of fun for your children. It is always a challenge. Can you do it in twelve tries? Can you remember which animal is behind which barn? You and your child will find yourselves trying to outsmart each other. This is a rare game, one that both adults and children can play and enjoy together. Ages 4-8. Basic Language. Cassette \$14.95, Disk \$16.95.

ENTERTAINMENT IN EXTENDED BASIC LANGUAGE*



Wizard's Dominion

A Fantasy Adventure by Thomas Johnson

An ominous glow beckons, inviting you to navigate the passages of crystal in search of adventure, gold and magical powers. Only the bravest dare to enter the cavernous world of the WIZARD'S DOMINION. Spend your gold wisely as your life depends upon your decisions.

A great adventure awaits those who dare to enter, but BEWARE, the price may be your life! Half-human monsters stalk the passages ready to defend them from intruders. Magic, armor and weapons combined with your wits may defeat his strength. Come, are you ready to enter the WIZARD'S DOMINION?

- 3-D Perspective
- Superb Graphics
- Ages 12 to Adult
- Become Master Wizard
- Magical Powers Galore
- Complex Battles
- Many Levels to Conquer
- Hundreds of caves per level

EXTENDED BASIC LANGUAGE

ALL THIS FOR ONLY!! \$19.95 cassette
\$21.94 disk

... it makes use of screen graphics as an integral part of the action. These graphics include three dimensional views of maze like caves, as well as treasures and pots of gold.



If you like puzzles and a little bit of adventure magic, you'll surely enjoy the WIZARD'S DOMINION. It is well documented with good charts and is available on both cassette tape and disk for those with extended basic.

99'er Magazine Volume 1, No. 6

*Extended Basic: Modul required

Tventures by Scott Morgan

Let your computer take you on exciting adventures. Go to strange new lands, go back in time, visit a haunted house... solve the puzzles and mysteries. Get ready for hours of adventuring fun as you play the new Tventures. With sound effects and save feature.

<h3 style="text-align: center;">Haunted House</h3>  <p>This is an adventure that will put you in a trance. Monsters and Magic lurk everywhere in this strange house. Only the brave will make it. Grab the ruby and get out. Not as easy as it sounds.</p> <p style="text-align: center;">Difficulty: Intermediate Ages: 12 to adult Extended Basic Language</p> <p style="text-align: center;">Cassette 14.95 Disk 16.95</p>	<h3 style="text-align: center;">Stone Age</h3>  <p>How good are you at history? How about 5000 B.C.? Can you survive the many dangers that lie ahead? On this adventure, you must find the time machine to transport you back to the 20th century.</p> <p style="text-align: center;">Difficulty: Intermediate Ages: 12 to adult Extended Basic Language</p> <p style="text-align: center;">Cassette 14.95 Disk 16.95</p>
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Bomb Squad

Users-Group rating ****

Time is ticking away. Only 16 seconds left! To stop the clock the timer circuit must be cut. But which one is it? One more test and you should know. The question is, can you figure it out in time?

For high intensity excitement this is the best game we've seen. As the time relentlessly ticks away you must make tests on the bombs circuits and use logic to deduce which wires to cut. Over 20 levels of difficulty make this game a challenge for the beginner or the expert. Ages 12 to Adult. Extended Basic Language. Cassette \$14.95. Disk \$16.95.



3-D Maze

Users-Group rating ****

Enter the world of 3-D Maze. Look down the hallways, explore them, find the dead ends and the loops. Try to remember in what direction you are going and then find the exit! There are hundreds of mazes, some easy, some very difficult. Come, try to conquer the world of 3-D Maze. Ages 12 to Adult. Extended Basic Language. Cassette \$14.95. Disk \$16.95.

"The finest maze program that we have seen is the new 3-D Maze program that was developed by Thomas Johnson of American Software."


Users-Group Newsletter March 31, 1982

"... a pair of unique, thoroughly engrossing games"

American Software Design & Distribution Co. (Cottage Grove, MN) has taken the basic raw elements of logical deduction, limited time, memory, and visual perception, then added a few measures of excitement and confusion, mixed it all together with some interesting graphics, and has come up with Bomb Squad and 3-D Maze."

reviewed in 99'er magazine Vol 1, No. 4

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Whether it's sharpening your children's math skills, advising you on household financial decisions, or simply teaching you to win at chess, the TI-99/4A, with its powerful "16 BIT" microprocessor makes learning interesting and easy. And the NEW TI WRITER word processing program and TI IMPACT PRINTER now available make the 99/4A an invaluable household and small business tool.

Choose from our large TI library of pre-programmed cassettes, disks or TI's exclusive Solid State Software Command Modules and show your family how easy and fun learning can be. Like spelling, reading, math, grammar, typing and science for children, budget management, personal record keeping, financial decisions, tax planning, and report generator for you to name just a few.

If you have now or are planning a disk drive setup, you'll be glad to know that we now offer Maxell 5-1/4" diskettes in packs of two for just \$7.82 (boxes of 10 \$29.10).

Another special deal worth looking at is the FREE Speech Synthesizer with the purchase of 6 software modules or 2 software albums (listed below). Also, check with us for our 99/4A Peripheral Trade-In Program for the new Expansion Box and Peripheral Cards.

Family fun, home management help and valuable learning exercises can all be right at your finger tips with the TI home computer. All the power and capability you'll need is here ... from the finest color graphics anywhere to the wonder of synthesized speech.

Shop around, and if you find lower prices, give us a chance to beat that deal. You can call **TOLL FREE** at **800-227-8292**. In California, call 415-969-6600. We accept VISA, MasterCard, or send check or money order to: **The BACH Company**, P.O. Box 51178, Palo Alto, CA 94303.

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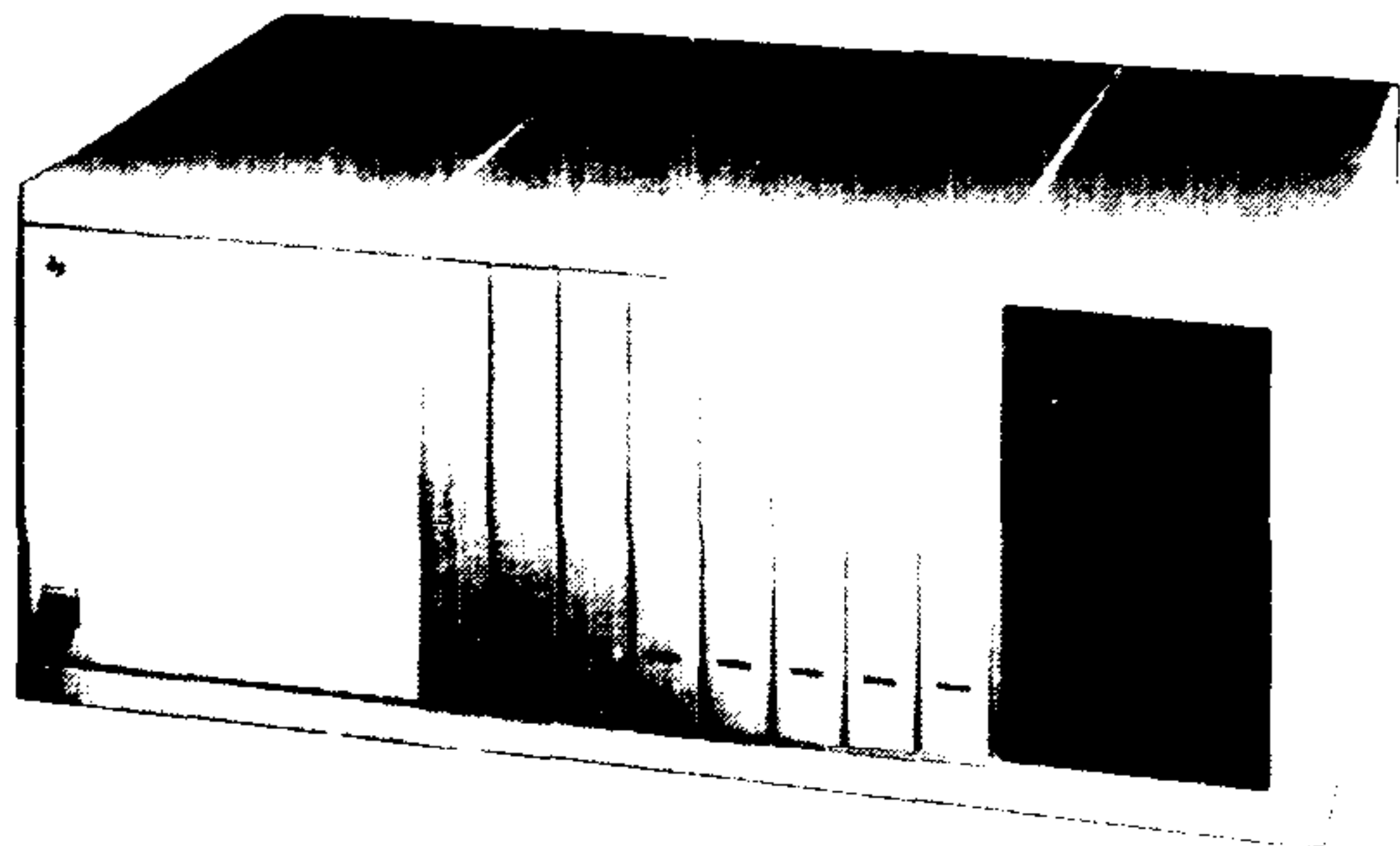
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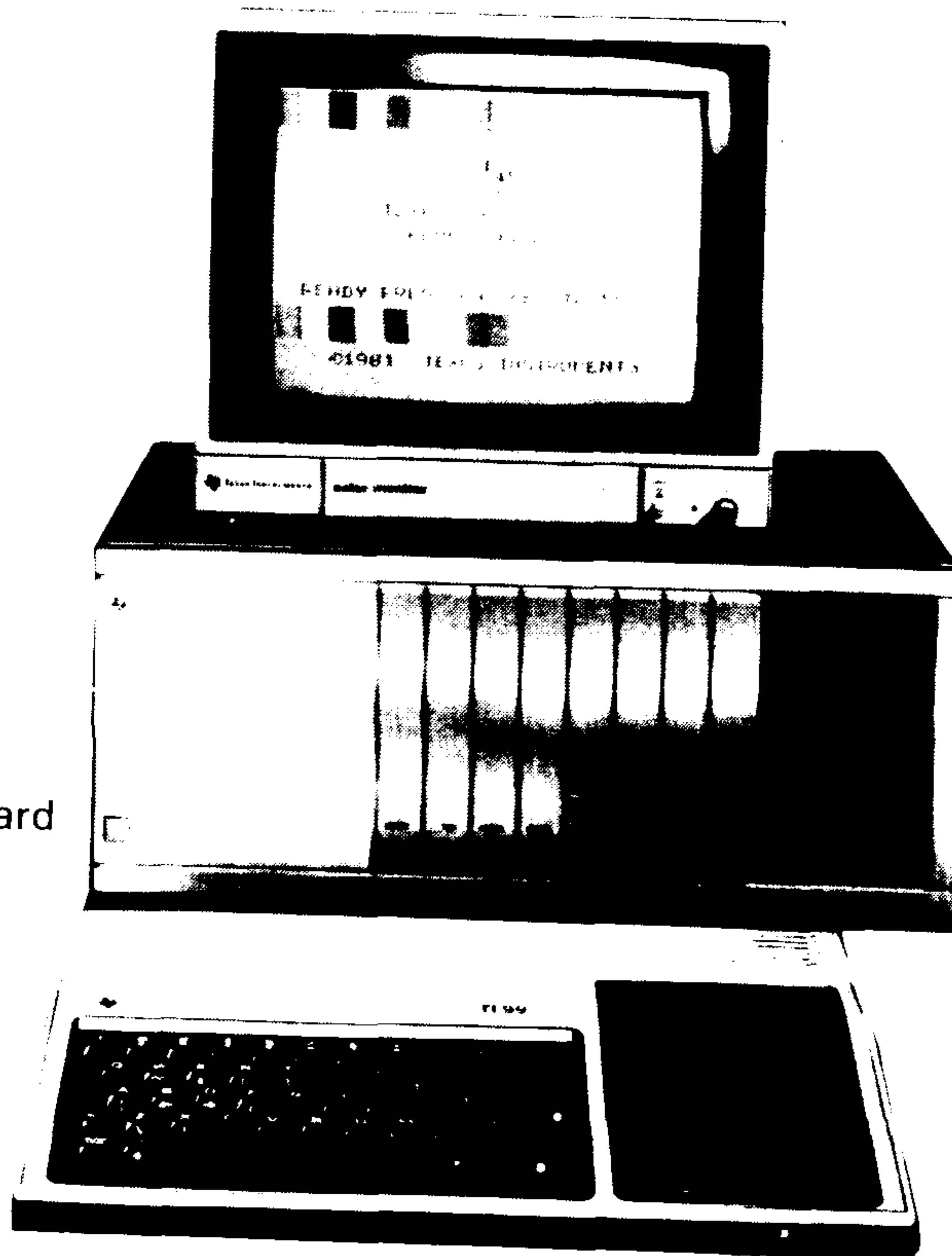
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May 1, 1982

Texas Instruments TI-99/4A Home Computer Products

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PHC 004A	TI-99/4A Home Computer (Includes RF Modulator)	450.00	339.00
PERIPHERALS			
PHP 1200	Peripheral Expansion Box**	249.95	186.25
PHP 1220	RS-232 Card**	174.95	129.89
PHP 1240	Disk Controller Card**	249.95	186.25
PHP 1250	Expansion Box Disk Drive Card**	399.95	298.00
PHP 1260	Memory Expansion Card** (RAM)	299.95	223.00
PHP 1270	P-Code Card**	249.95	186.25
PHP 1500	Solid State Speech™ Synthesizer	149.95	109.95
PHP 1600	Telephone Coupler (Modem)	224.95	164.95
PHP 1700	RS-232 Accessories Interface ⁽¹⁾	224.95	164.95
PHP 1800	Disk Drive Controller ⁽¹⁾ (One Disk Manager module packed with each Disk Controller)	299.95	219.95
PHP 1850	Disk Memory Drive	499.95	367.95
PHP 1900	Solid State Printer	399.95	296.95
PHP 2200	Memory Expansion ⁽¹⁾ (32K RAM)	399.95	287.95
PHP 2300	VCR Controller ⁽²⁾	699.95	519.49
PHP 2400	P-Code Peripheral ⁽¹⁾	399.95	298.00
PHA 2100	R.F. Modulator (TV Adapter)	49.95	37.50
PHA 4100	10" Color Monitor	399.95	324.95
OPTIONAL ACCESSORIES			
PHP 1100	Wired Remote Controllers (Pair)	34.95	26.95
PHA 1950	Thermal Paper (2 Pack)	9.95	7.95
PHA 2000	Dual Cassette Cable	14.95	11.95
PHA 2010	Monitor Cable	19.95	14.95
PHA 2020	Audio Adapter (Headphone Jack)	19.95	16.00
PHA 2310	Panasonic VCR Controller Cable	99.95	89.00
PHA 2320	Sony VCR Controller Cable	99.95	89.00
PHA 2330	Pioneer VCR Controller Cable	99.95	89.00
PHA 2605	Blank Overlays (4 Pack)	7.95	6.50
DOCUMENTATION			
PHA 2600	Beginning BASIC Manual (TI-99/4 Only)	9.95	7.72
PHA 2601	User's Reference Guide (TI-99/4 Only)	9.95	7.72
PHA 2602	Beginning BASIC Manual (TI-99/4A Only)	9.95	7.72
PHA 2603	User's Reference Guide (TI-99/4A Only)	9.95	7.72
PHA 2606	Creative Programming Computer Competency Series — Volume I	9.95	7.72
PHA 2607	Creative Programming Computer Competency Series — Volume II	9.95	7.72
PHA 2608	Creative Programming Computer Competency Series — Volume III	9.95	7.72
PHA 2609	Creative Programming Computer Competency Series — Allstar Projects	9.95	7.72
PHA 2610	Creative Programming Computer Competency Series (6 volumes)	89.95	69.00
APPLICATION PROGRAMS			
Home Management/Personal Finance			
Command Modules			
PHM 3006	Home Financial Decisions	29.95	24.95
PHM 3007	Household Budget Management (Data storage system is required)	39.95	33.50
PHM 3012	Securities Analysis	54.95	45.95
PHM 3013	Personal Record Keeping (Data storage system is recommended)	49.95	39.50
PHM 3016	Tax/Investment Record Keeping (Disk system is required)	69.95	58.95
PHM 3022	Personal Real Estate (Data storage system is recommended)	69.95	52.95
PHM 3044	Personal Report Generator (Data storage system is recommended)	49.95	42.45

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PHD 5003	Personal Financial Aids	19.95	16.50
PHD 5021	Checkbook Manager	19.95	16.50
PHD 5022	Business Aids Library — Finance Management (Extended BASIC Command Module is required)	39.95	33.50
PHD 5024	Business Aids Library — Inventory Management (Personal Record Keeping or Statistics Command Module is required)	69.95	58.95
PHD 5027	Business Aids Library — Invoice Management (Personal Record Keeping or Statistics Command Module is required)	69.95	59.45
PHD 5029	Business Aids Library — Cash Management (Extended BASIC Command Module is required)	39.95	33.95
PHD 5038	Business Aids Library — Lease/Purchase Decisions	69.95	59.45
Cassette			
PHT 6003	Personal Financial Aids	14.95	12.50
PHT 6038	Business Aids Library — Lease/Purchase Decisions	59.95	50.95
Education/Personal Enrichment			
Command Module			
PHM 3002	Early Learning Fun	29.95	24.95
PHM 3003	Beginning Grammar	29.95	24.95
PHM 3004	Number Magic	19.95	16.50
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PHM 3008	Video Chess	54.95	54.50
PHM 3010	Physical Fitness	24.95	21.95
PHM 3015	Early Reading † (Solid State Speech™ Synthesizer is required)	54.95	45.95
PHM 3020	Music Maker (Data storage system is recommended)	39.95	33.50
PHM 3021	Weight Control and Nutrition (Data storage system is recommended)	59.95	44.95
PHM 3027	Addition and Subtraction I† (Solid State Speech™ Synthesizer is recommended)	39.95	33.50
PHM 3028	Addition and Subtraction II† (Solid State Speech™ Synthesizer is recommended)	39.95	33.50
PHM 3029	Multiplication I† (Solid State Speech™ Synthesizer is recommended)	39.95	33.50
PHM 3040	TI LOGO (Memory Expansion is required)	129.95	86.60
PHM 3043	Reading Fun†	54.95	45.95
PHM 3059	Scholastic Spelling — Level III** (Solid State Speech™ Synthesizer is required)	54.95	45.95
PHM 3060	Scholastic Spelling — Level IV** (Solid State Speech™ Synthesizer is required)	54.95	45.95
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PHM 3064	Typing Tutor**	39.95	33.50
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PHD 5007	Teach Yourself BASIC	34.95	28.95
PHD 5009	Music Skills Trainer	29.95	24.95

**Available in Second Quarter 1982.

†Developed by Scott Foresman

††Developed by Milton Bradley — The Attack, Blasto, Hustle, ZeroZap, Connect Four and Yahtzee are trademarks of Milton Bradley.

⁽¹⁾Available only until replaced by peripheral card.

⁽²⁾Pending FCC approval, available late First Quarter 1982.

⁽³⁾UCSD, UCSD Pascal and UCSD p System are all trademarks of the Regents of the University of California.

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PHD 5020	Music Maker Demonstration (Music Maker Command Module is required)	14.95	12.50
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PHD 5056	Golden Voyage	29.95	24.95
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PHT 6008	Electrical Engineering Library	24.95	20.95
PHT 6013	Graphing Package	14.95	12.50
PHT 6016	Structural Engineering Library	24.95	20.95
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Model	Suggested Retail	CBM Price
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Epson 8145	149.95	124.00
Epson Graftrax II #	90.00	65.00
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#Graftrax requires Epson 8145 Interface		
Texas Instruments 840 RO Basic	995.00	895.00
Texas Instruments 810 RO Basic	1645.00	1480.00
Texas Instruments 820 RO Basic	1995.00	1795.00
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FUTURA SOFTWARE		
General Ledger†	99.95	89.95
Accounts Payable§	99.95	89.95
Word Processor§	99.95	89.95
Mail List*§	99.95	89.95
Accounts Receivable*§	99.95	89.95
Inventory Management*§	99.95	89.95
Payroll*§	99.95	89.95
INSTANT SOFTWARE		
Airmail Pilot (Cassette)		9.95
Santa Paravia and Fiumaccio (Cassette)		9.95

* Under development.
 † Requires 2 disk drives, extended basic, printer with compressed print.
 § Requires 32K RAM in addition to items above.

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 when you order.)

sible for the 6502-based hand held computer being sold by Panasonic and Quasar. The JR-100 will be sold to the home market – primarily the hobbyist and home study market at first. A full line of peripherals is planned – modems, floppy disks, etc.

Astrovision demonstrated the Bally Arcade with a plug-in expansion unit housing a full-stroke keyboard and running the language ZGRASS. This graphics language was developed (if memory serves) by Tom Defanti at the University of Illinois in Chicago. The goal is to allow artists and other non-technical types to create breathtaking real-time animations without having to learn machine language programming. The result is beautiful. Since the Z80-based Astrovision game machine has the same multi-chip display controller used in Bally's coin operated arcade games, high quality graphics is possible. What makes it practical is the ease with which figures drawn on a tablet can be saved as procedures, located anywhere on the screen, and can be magnified and rotated at will.

Astrovision seems intent on aggressively pursuing this project, but it isn't clear how effectively they will be able to compete. As with the other machines mentioned so far, don't expect to see the ZGRASS machine next week.

For those who take their graphics seriously, Toshiba was pleased to announce the T100 computer. When used with a high resolution color monitor, the user has access to 8 colors on a 640 by 200 dot array. A multi-line liquid crystal display was shown as an alternative. The packaging of this CP/M machine reminded me of the NEC PC-8000 – very stylish and business-like. Equipped with a Z80, 32K of ROM and 64K of RAM, this computer should appeal to those who are interested in doing some serious work.

Sharp had a surprise of its own. The original PC-1200 hand-held computer (available from Radio Shack for some time) has been joined by an 8-bit brother: the PC-1500. While this new machine is much faster than its predecessor, the most amazing feature was the availability of a color graphic printer. For a total price of \$550, Sharp users will have access to a computer with a pocket-sized drum plotter that lets you draw pictures with any of four automatically selected pens (red, green, blue, black). This is one product that has to be seen to be believed – and even then you won't believe it.

The PC-1500 is available now. (Of course I ordered one!)

At long last, the Casio FX-9000 desktop computer is on the market. This computer has a built-in 5" monochrome display with the ability to show graphics images with a 256x128 resolution. The sleek styling is reminiscent of the Hewlett Packard HP-85, but the price (under \$1800, fully loaded) is

more in keeping with Casio's products. The FX-9000 uses a Z80 compatible processor and gives the user access to two types of RAM. Front panel accessibility to RAM cartridges lets the user choose between 16K dynamic RAM cartridges, and 4K CMOS cartridges. The 4K byte RAM module contains its own battery, so that programs which are saved on this module can be removed and saved for instant reloading later.

Texas Instruments developed and showed a similar 4K RAM cartridge for the 99/4. Since TI also showed a new Assembler/Editor system, the ability to let users make their own cartridges is quite appealing. My, what a difference a year makes.

TI also showed a nicely designed expansion box which does ~~much~~ to reduce the clutter associated with fully loaded systems.

Atari's booth was almost impossible to enter. It was as if everyone who attended the show decided to check them out at the same time. The official authorized Atari Pac Man program was introduced. The action is a little different from the previous version done for the Atari computer (Jawbreaker) by OnLine Systems. Compared to the Pac Man games also shown by Magnavox, Astrovision, Texas Instruments, and others, Atari did a very nice job at software development. Coleco's hand-held version of the game was not as exciting, but then it doesn't use a color display screen either.

While my emphasis has been on hardware, it should be noted that software was on display as well. Automated Simulations displayed some of their newer programs for the Apple and Atari computers. While they are known primarily for their adventure games, Automated Simulations has developed a line of educational games (such as Jabbertalky) which are terrific.

The fact that a few dedicated people are willing to make the effort to generate educational games which teach as well as entertain should not go unrewarded. These people are doing an excellent job and are to be congratulated.

Both Activision and IMAGIC showed cartridges for the Atari video game which demonstrated exceptionally high quality graphics. Not surprisingly, these booths were well attended as well.

So much to see, and too little time! I was so busy getting all this information for you dear readers that I barely got to examine the solar-rechargeable flashlights, underwear with built-in loudspeakers, and ball point pens with built-in clocks and music synthesizers.

But that is why there are two shows a year. So until the next CES this June in Chicago, I'll just have to be content with what I saw.

***A Comparison of the
TI-99/4A Home
Computer to other
Personal Computers***

A Comparison of Personal Computers

	TI-99/4A	TRS-80 COLOR	ATARI 400	ATARI 800
Retail Price	\$300-\$350	\$399	\$330-\$400	\$700-\$750
Read Only Memory (ROM)	26K	8K	10K	10K
Random Access Memory (RAM)	16K	4K	16K	16K
Maximum RAM	52K	32K	16K	48K
Keyboard	48-Key Typewriter	53-Key Calculator- style buttons	61-Key Touch- sensitive	61-Key Typewriter
Languages	BASIC, Extended BASIC, Assembler, Pilot, Pascal, TI LOGO	BASIC, Extended BASIC	BASIC, Pilot, Pascal, Assembler	BASIC, Pilot, Pascal, Assembler
Color	Yes (16)	Yes (8)	Yes (16)	Yes (16)
Sound	3 Voices, 5 Octaves	1 Voice	4 Voices, 4 Octaves	4 Voices, 4 Octaves
Screen Display	32x24	32x16	40x24	40x24
Graphic Resolution	256x192	64x32 up to 256x192	280x192	280x192
CPU/MPU	TMS-9900 16-bit	6809-2 8-bit	6502 8-bit	6502 8-bit

A Comparison of Personal Computers

	COMMODORE VIC-20	SINCLAIR ZX80	APPLE II PLUS	IBM
Retail Price	\$260-\$300	\$150	\$1200-\$1250	\$1900-\$2200
Read Only Memory (ROM)	16K	4K	16K	40K
Random Access Memory (RAM)	5K	1K	16K	48K
Maximum RAM	32K	16K	48K	192K
Keyboard	66-Key Typewriter	40-Key Touch- sensitive	52-Key Typewriter	83-Key Typewriter
Languages	BASIC, Assembler	BASIC	BASIC, Pascal, FORTRAN, CP/M, Pilot, Assembler, APPLE-LOGO, COBOL	BASIC, Pascal, FORTRAN
Color	Yes (16)	No	Yes (16)	Yes (16)
Sound	4 Voices	No	1 Voice	1 Voice
Screen Display	23x22	32x23	40x24	40x24 or 80x24
Graphic Resolution	184x176	64x46	280x192	320x200 or 640x200
CPU/MPU	6502A 8-bit	Z80A 8-bit	6502 8-bit	8086 16-bit

Key Points in Selling TI-99/4A

1. TI Reputation
 - a. Quality
 - b. Innovation
2. Ease of Use—over 50 *Solid State Software*™ Command Modules
3. Most *Solid State Software*™ programs available
4. Synthesized Speech Capability—not available on any other personal computer
5. Color, Sound, Music, and Graphics
6. Incorporates color, sound, music, and speech in same program
7. Unmatched Expandability
8. Wide Selection of Programming Languages
 - a. Novice: BASIC
 - b. Children: LOGO
 - c. Advanced: Pascal, Extended BASIC, Assembler
9. Information Access Capabilities
 - a. TEXNET
 - b. Interface with larger computer systems
10. Best Value for Your Computing Dollar
 - a. Most memory for the money
 - b. Best color, sound, music, and graphics resolution for the money
 - c. Most languages for the money
 - d. Best screen display for the money
 - e. Most expandability for the money
11. Comprehensive Product Support
 - a. In-store demonstrations
 - b. Exchange Centers
 - c. 99/4A Newsletter
 - d. Toll-free Hotline
 - e. 99'ER Magazine
 - f. Numerous users groups
 - g. 1000+ software programs from independent sources

Tips for Retail Sales Personnel

1. TI-99/4A Display
 - a. Set up in high traffic area
 - b. Keep operational at all times
 - c. Keep a stock of all software/peripherals
2. Use Bill Cosby VCR Tape
 - a. Draws a crowd
 - b. Demonstrates briefly most everything about system
3. Literature
 - a. Have enough Slim-Jim's available
 - b. Know how to explain Software Directory
 - c. Know how to use retail Demonstration Guide
4. TI Support
 - a. Toll-free Hotline: Have number available (800-858-4565) or (800-692-4279) within Texas
 - b. TI Exchange Center: Have address available of nearest one
5. TI-99/4A vs. Competition: Know TI strengths
 - a. vs. Commodore VIC-20
 - b. vs. Atari 400/800
 - c. vs. Apple II
 - d. vs. Radio Shack TRS-80 Color Computer

Product Comparisons

TI-99/4A VERSUS

RADIO SHACK TRS-80
COLOR COMPUTER

COMMODORE VIC
COMPUTER

ATARI 400

ATARI 800

APPLE II PLUS

TI-99/4A VS. RADIO SHACK TRS-80 COLOR COMPUTER

TI-99/4A STRENGTHS

- 48 key typewriter-style keyboard (53 key calculator-styled buttons on TRS-80)
- \$300-\$350 retail price for 16K RAM (TRS-80 selling at \$399 comes with 4K RAM; 16K RAM costs \$200 extra — \$599 total)
- Excellent Expandability
 - 52K maximum RAM memory (32K on TRS-80)
 - Able to use up to 3 disk drives (TRS-80 can handle only 1)
 - Extended BASIC, Assembler, Pilot, Pascal, and LOGO available (only Extended BASIC available on TRS-80)
- Speech capability (not available on TRS-80)
- 16 colors (8 on TRS-80)
- Sound/music capability of 3 voices, each having 5 octaves (only 1 voice on TRS-80)
- Over 50 *Solid State Software*™ Command Modules (27 available for TRS-80)
- 1000+ software applications available now from TI and independent sources
- Unmatched Product Support Program
 - 1000+ teacher demonstrators
 - Nationwide network of users' groups
 - Users' Newsletter
 - 99'ER Magazine
 - Toll-free assistance phone number
 - 42 TI Exchange Centers

TI-99/4A VS. APPLE II PLUS

TI-99/4A STRENGTHS

- \$300-\$350 retail price for 16K RAM (APPLE II PLUS sells at \$1200-\$1250 for 16K RAM)
- Speech capability (None available on APPLE II PLUS)
- Sound/music capability of 3 voices, each having 5 octaves (Only 1 voice on APPLE II PLUS; music capability optional at extra cost)
- Over 50 *Solid State Software*™ Command Modules (None available for APPLE II PLUS)
- Unmatched Product Support Program
 - 1000+ teacher demonstrators
 - Nationwide network of users' groups
 - Users' Newsletter
 - 99'ER Magazine
 - Toll-free assistance phone number
 - 42 TI Exchange Centers
- 16-bit microprocessor (8-bit in APPLE II PLUS)

TI-99/4A VS. COMMODORE VIC-20

TI-99/4A STRENGTHS

- \$300-\$350 retail price for 16K RAM (VIC-20 unit selling at \$250-\$300 comes with 5K RAM; 16K RAM costs \$100 extra — \$360-\$400 total)
- Excellent Expandability
 - 52K maximum RAM memory (32K on VIC-20)
 - Extended BASIC, Assembler, Pilot, Pascal, and LOGO available (only Assembler available on VIC-20)
- Speech Capability (not available on VIC-20)
- Screen display size of 32 characters x 24 rows (only 23 x 22 on VIC-20)
- Graphic resolution of 256 dots across by 192 dots down (184 x 176 on VIC-20)
- Over 50 *Solid State Software*™ Command Modules (15 available for VIC-20)
- 1000+ software applications available now from TI and independent sources
- Unmatched Product Support Program
 - 1000+ teacher demonstrators
 - Nationwide network of users' groups
 - Users' Newsletter
 - 99'ER Magazine
 - Toll-free assistance phone number
 - 42 TI Exchange Centers

TI-99/4A VS. ATARI 800

TI-99/4A STRENGTHS

- \$300-\$350 retail price for 16K RAM (ATARI 800 sells at \$700-\$750 for 16K RAM)
- Speech capability (none available on ATARI 800)
- Over 50 *Solid State Software*™ Command Modules
- 1000+ software applications available now from TI and independent sources
- TI LOGO
- Unmatched Product Support Program
 - 1000+ teacher demonstrators
 - Nationwide network of users' groups
 - Users' Newsletter
 - 99'ER Magazine
 - Toll-free assistance phone number
 - 42 TI Exchange Centers
- 16-bit microprocessor (8-bit in ATARI 800)

TI-99/4A VS. ATARI 400

TI-99/4A STRENGTHS

- 48-key typewriter-styled keyboard (flat touch-sensitive keyboard on ATARI 400)
- BASIC programming language built into console (\$60 extra on ATARI 400)
- Excellent Expandability
 - 52K maximum RAM memory (16K on ATARI 400)
 - Able to use up to 3 disk drives (no disk system available on ATARI 400)
- Speech capability (not available on ATARI 400)
- Over 50 *Solid State Software*™ Command Modules (15 available for ATARI 400)
- 1000+ software applications available now from TI and independent sources
- Unmatched Product Support Program
 - 1000+ teacher demonstrators
 - Nationwide network of users' groups
 - Users' Newsletter
 - 99'ER Magazine
 - Toll-free assistance phone number
 - 42 TI Exchange Centers

20 Most Commonly Asked Home Computer Questions

1. Question: Will it drive a large printer?

Answer: Yes. The 99/4A working with the RS232 Interface unit will drive any printer that can be driven via the RS-232 standard. This includes most current line printers, such as the OMNI 810, which is made by TI, and other printers which are on the market. In addition, the RS232 Interface Card features a parallel interface for those printers which do not use RS-232.

2. Question: Can you print the contents of any screen?

Answer: The answer to this is no. However, a TI BASIC program can be written that will print the contents of a screen. It is now possible also to print the contents of some screens generated by Command Modules.

3. Question: Can I do fine line graphics?

Answer: Yes. The resolution of the screen is 32 characters by 24 characters. We can break that down a step further in that each character consists of an eight-by-eight dot matrix. So that comes out to a final resolution of 32 times 8, which is 256, by 24 times 8 — 192. Any character that can be defined in an eight-by-eight dot matrix can be put on the screen and called by a character number, which allows for the generation of all sorts of graphic elements. The 99/4A can do dot-addressable (bit-map) graphics with specialized software.

4. Question: Will the cost come down like the calculator did?

Answer: The cost will conceivably reduce slightly. As we are able to make more and more units, we do naturally come down a cost learning curve. However, the large amount of hardware (including circuit board and plastic tooling) contained in the Home Computer will keep it from following the same behavior as calculator pricing. The price should come down a little, but not nearly like that on calculators. The important thing to remember is: *If you wait around for the cost to come down drastically, you may be waiting forever*, and in the meantime, you are not able to capitalize on the powerful benefits of owning a Home Computer.

5. Question: Will it be obsolete next month?

Answer: An emphatic no. The 99/4A is designed to support a wide variety of peripheral devices which add to its function and usefulness. Therefore, when a new peripheral comes out, you simply plug it into the 99/4A and it performs the function of that new peripheral.

6. Question: What is the warranty like?

Answer: If the computer fails within the first ninety days because of defective materials or workmanship, it will be replaced free of charge. If a failure occurs after the ninety-day period, the computer will be repaired for a small fee, depending on the severity of the problem. There are also 42 Exchange Centers located around the United States where, for a small fee, you can exchange your computer for a working computer. These are the same repair and exchange centers that currently handle our calculator products.

For specific information about repair charges, call 800-858-4565 (toll free within the contiguous United States except Texas) or 800-692-4279 within Texas.

7. Question: Can I edit or change Solid State Software™ Command Modules?

Answer: No. The *Solid State Software™* modules are programs locked in integrated circuit chips. The user cannot alter them at this time. However, the Mini Memory module is designed so that it can be altered.

8. Question: Why are there no programs for businesses?

Answer: The TI-99/4A was designed from the very outset to be a true *home-use* computer. This does not rule out its application in many *small* business situations. In fact, independent sources have written *many* small business applications (see Applications Directory). However, your major software thrust will continue to be geared for the home.

9. Question: Why should I buy this computer instead of the competition (Apple, TRS80, Atari, etc.)?

Answer: There are several reasons. First of all we have, without a doubt, the *easiest computer* to use that's available on the market today. The use of *Solid State Software™* Command Modules allows a novice to use the computer with a minimum of effort and experimentation. Second, we believe we offer an unparalleled *record of service to consumers*. Texas Instruments has for years been in the business of bringing high-powered technology into the home (much longer than anyone else). Thus, it's natural to expect TI to bring out the Home Computer. We stand behind our products after the sale by providing things like *quality service, user newsletters*, and continuing *software support*. Third, we are a solid, well-established, well-capitalized company. Incidentally, as this was being written, we announced our first *billion dollar sales* quarter. We *will* be around next year to support buyers of the Home Computer.

10. Question: What microprocessor do you use, and what are its advantages?

Answer: We use the *9900 series microprocessors*. It allows us to operate and do some very sophisticated things as far as signal processing is concerned, especially when using peripheral devices. Why did we use that particular microprocessor? The 9900 series microprocessor is a 16-bit microprocessor and currently the state of the art. The 16-bit TMS9900 microprocessor makes the computer more accurate, allows two computer words to be processed at a time, has more memory storage, allows use of disk drive with 16K RAM, and is exponentially more powerful than an 8-bit microprocessor.

11. Question: Is system documentation (schematics) available?

Answer: Yes. Documentation can be obtained by writing to:

Texas Instruments
c/o The Dealer Parts Department
P.O. Box 53
Lubbock, TX 79408

12. Question: What is the power consumption of the Home Computer and the monitor?

Answer: The power consumption of the Home Computer plus the monitor is about the same as a 150-watt light bulb.

13. Question: Why is your BASIC so slow?

Answer: TI BASIC is not so slow. We've run benchmark tests using the Kilobaud Magazine benchmarks and several others. The results show our BASIC to be neither the fastest nor slowest available.

14. Question: Why so much "bad press" lately?

Answer: Many recent articles have appeared that contrast the TI-99/4A to computers intended primarily for hobbyists or business use. The claim is that currently the market is for computers that serve *these* markets, and that by building a computer for the *home* we've missed the boat. In fact, we didn't miss anything. We know that the home market for computers will be much slower to mature than the currently active hobbyist and business markets, and it also will be much larger. The home market is one we know well, and we have dealt with it for years with our calculators and learning aids. (Incidentally, many members of the press were once skeptical that *calculators* would ever sell into the home — they would be used only by accountants and businessmen in offices.) We will continue building products for the home market, and the TI-99/4A is our personal computer for that market. For a while we can certainly understand some of the short-term skepticism of the press. In the long run, we expect they'll see things differently.

15. Question: Can you connect it to large computer data bases?

Answer: Yes. With the use of the telephone modem, Terminal Emulator II Command Module, and the RS232 Interface, our computer can be connected to large computer data bases such as MICRONET, THE SOURCE, COMPUSERVE, DOW JONES, etc. Information about these data bases can be obtained at your local computer store.

16. Question: What cassette recorders can be used to store data on the 99/4A?

Answer: G.E. Model 3-5154A (Silhouette-2)

Cost: \$40-50

Features: Tape counter

G.E. Models 510F & G

Cost: \$30-50

Features: No counter

Panasonic Model 2309A

Cost: \$40-50

Features: Tape counter

Realistic mode CTR-21A

Cost: \$50-70

Features: Tape counter, cue review, record meter

17. Question: Can the computer do things for my home — turn on lights, regulate the temperature, control burglar alarms, etc.?

Answer: At the present time the only things standing between these sorts of functions and our current computer are simple peripheral devices that will plug into the computer.

18. Question: Is it durable? Will it withstand electrical shock via static electricity, keyboard abuse, etc.?

Answer: We have produced what is probably the most durable computer that's ever been made. We applied all we have learned from our years of experience in building handheld calculators to the 99/4A. For example, the computer has been designed to withstand a static electricity shock in excess of 50,000 volts with no physical damage to the computer. The only change occurring at that particular point is that some data in RAM may be changed or lost. As far as physical abuse to the keyboard, it's probably one of the most rugged keyboards that's ever been put into any computer. The key mechanism itself was designed to be used in a desk top commercial calculator. These calculators receive thousands of keystrokes per day. We have a very durable, very hard-to-hurt computer. It's been designed to operate under conditions far in excess of those you would ever encounter in your home.

19. Question: How much information can I store on a diskette?

Answer: Our current disk system will store 87K bytes of data, which is about the same as 87,000 keystrokes of information (per diskette, per drive).

20. Question: Is the new Peripheral Expansion System compatible with the old "train" peripherals?

Answer: Yes, the new peripheral system will plug into the 99/4A console or into the old-style peripherals.



K MART/TEXAS INSTRUMENTS RETAIL PRICE LIST

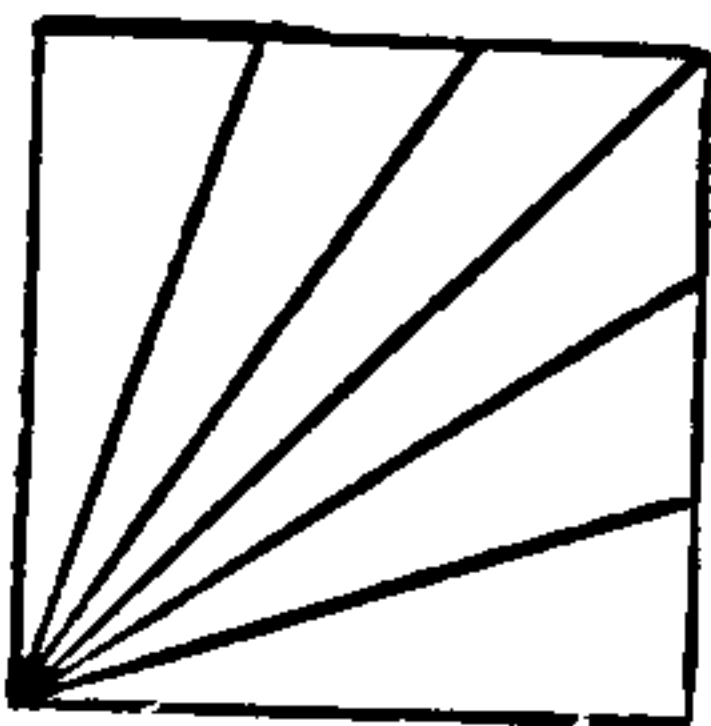


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1982 Software Catalog TI 99/4



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your moves control your destiny
and even may change the
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(The giant might get you)

This is one
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Minimum Configuration Required.

1. 99/4 or 99/4A console.
2. 1 Disk Drive and Controller. ★
3. 32 K Memory Expansion.
4. Extended Basic Module.

★ Not available on cassette.

\$17.95

Including shipping
& handling

Reprogrammed for the 99/4 by George F. Steffen
©1982 TEX-SOFT



Videogame Stocks' Play Braked by Price Cut On Home Computer but Analysts Still Bullish

By GEORGE ANDERS

In 13 years of following entertainment companies, analyst Richard Simon of Goldman, Sachs & Co. says he never saw anything like the recent performance of some videogame stocks, led by Warner Communications.

Warner was a darling of investors in 1981, but it has given back most gains this year, as some market participants have questioned how long the boom can last for Warner's Atari videogames unit. That controversy isn't over, but it took an unusual turn Monday, when Texas Instruments cut prices \$100 on its home computer that has been selling for \$299.

Warner makes a competing home computer, though it isn't relying on the machine for much of a profit contribution this year or next. Nonetheless, some money managers seem to have figured that price cuts could be coming to videogame products, too. After all, many home computers are used largely to play videogames. Warner's opening on the Big Board yesterday was delayed because of a flurry of sell orders, and the stock closed at 39 1/4, down 2. Shares in other videogame companies, such as Mattel, Bally, Coleco and Williams Electronics also have sagged this week.

That doesn't make sense, Mr. Simon argues. At Drexel Burnham Lambert, analyst John Reidy contends that the wide reaction to the Texas Instruments announcement is more indicative of a "bear market psychology" than a change in the video companies' prospects.

Mr. Reidy recently raised his 1982 per-share earnings estimate for Warner to \$5.70 from \$5.50-\$5.70. He expects earnings of \$7.10 a share next year, after 1981's \$3.57 a share, and regards the stock as a "buy." Warner may, too. It announced plans last month to buy as many as six million of its 66 million shares outstanding. A Warner spokesman declined to say whether Warner was buying its stock yesterday, but he did note that the purchase program won Securities and Exchange Commission approval just last Friday.

Warner is pricing its home console for videogames significantly below rival models from Mattel and Coleco, Mr. Reidy notes. The Warner spokesman says no price cuts are planned this year, though Warner might trim its price next year to "broaden the market."

As for the videogame cassettes themselves, Goldman's Mr. Simon expects most of Warner's sales to come on "big hits"

such as Pac-Man, where consumers are willing to pay \$30 a cartridge and permit Warner profit margins as large as 50%. Other companies will be more reliant on less-acclaimed, and less-profitable, generic games, he contends. Warner says it won't ignore the lower-price market, though; it soon will be joining the pack of companies offering a baseball videogame.

Even with the home computer, analysts say Texas Instruments' action isn't so direct a challenge to competitors as it might seem. Warner in June cut its bulk price for retailers to \$245 from \$289, meaning that Texas Instruments was, to some extent, following instead of leading the price cutting. Before the repricing, Texas Instruments had significantly trailed home-computer leaders Warner and Commodore International, and analysts say they are more concerned about eventual Japanese competition.

Commodore derives much of its earnings from home computers, and its stock has skidded more than six points this week. But Warner already said it expects a slight loss on computers this year. Analysts are expecting home computers to provide just a small percentage of next year's profit, though a Warner spokesman says an estimate of a \$15 million profit on home computers in 1983 might be low.

Warner still has plenty of skeptics. At Merrill Lynch, Pierce, Fenner & Smith Inc., analyst Harold Vogel says he is "neutral at best" about Warner and the videogame stocks. Profit margins have been very wide, he says, but that isn't likely to last as competition intensifies.

Goldman's Mr. Simon, however, remains a fan of Warner and Mattel. Regardless of the U.S. outlook, Warner's foreign sales are likely to grow 50% or more this year, he says. Mr. Simon also is looking for Mattel to earn \$4 a share this year, up from \$1.68 a share a year earlier. At yesterday's close of 11%, that puts its expected price/earnings multiple at an unusually low 3, he notes.

He also has recommended Coleco on a trading basis, though he is concerned about its longer-term prospects. He's cooler to Williams Electronics, though. Much of its business comes from arcades, which he regards as more volatile than sales of home videogames.

Warner's videogame position is likely to be improved this year by advertising outlays of \$75 million, triple its nearest competitors', Mr. Simon contends. Drexel's Mr. Reidy also is looking for an upturn in Warner's nearly ignored other businesses. These include movies, records and the Franklin Mint subsidiary, as well as a cable-television partnership with American Express.

Heard on the Street

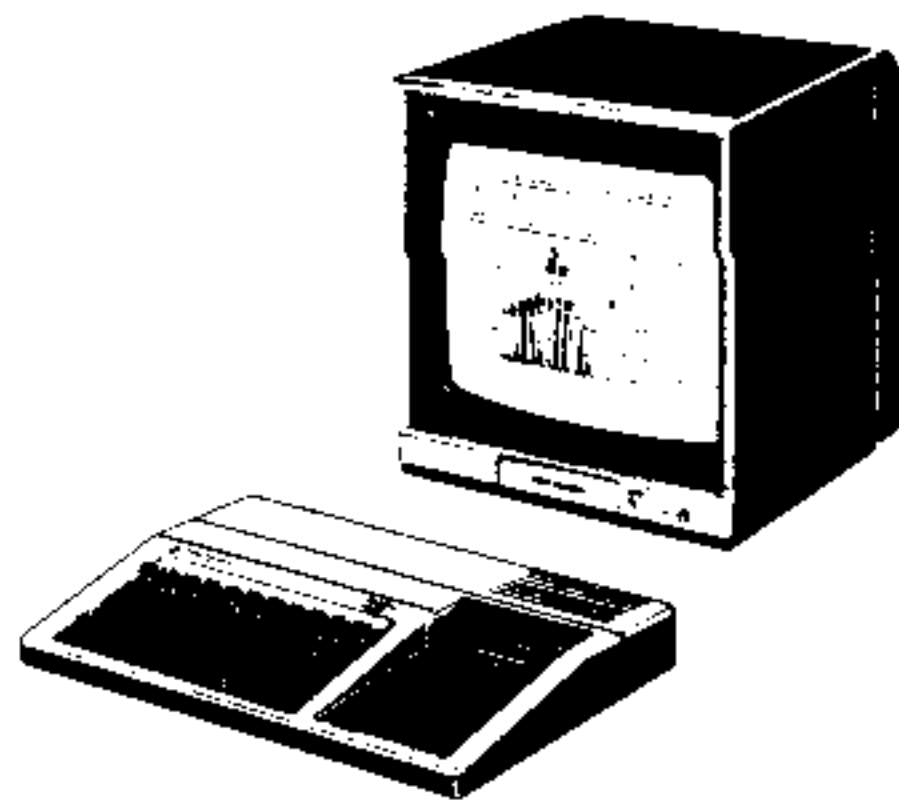
TI BASIC SEMINAR programming & workshop

A seminar dealing with programming in TI Basic will be held in FORUM HALL at University Towne Centre, La Jolla. The seminar will begin at 9:00AM on Saturday, March 27th.

The afternoon workshop will require the participants to bring their TI computer and monitor or TV. The hands on workshop will help you better understand TI Basic programming.

Reservations are required and payment in advance will hold your spot. All day \$7.00. Half day \$4.00. Call (714)756-4716 or write P.O. Box 371, Rancho Santa Fe, CA 92067

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ATTENTION

99/4 & 99/4A

USERS

International Home Computer Users Association

The **International Home Computer Users Association**, a multi-service, non-profit organization, has been established dedicated to serving the needs of Texas Instruments home computer users and users' groups.

The initial services offered are:

- An information and referral service
- A monthly newsletter
- A biweekly bulletin
- A newsletter exchange
- Special interest group coordination
- Club start-up kits and assistance
- An international amateur radio network of computers
- Consumer aid
- Programming assistance
- Hardware and software evaluations
- An annual convention
- A speakers bureau
- Special Users' Group Service

As the Association develops, more services will be added.

In the months ahead an advisory board will be formed comprised of TI Users' Group Presidents who will make proposals and suggestions to a full time staff and volunteers located at the Center in San Diego, California.

To participate in this Association the following affiliated memberships are offered. **INDIVIDUAL/FAMILY** — Open to individuals and families **\$40, annually.**

ASSOCIATED MEMBERSHIP — Open to Users' Groups only **\$65, annually.**

SPONSORING MEMBERSHIP — Open to individuals and other organizations wishing to support the Association **\$250, annually.**

CORPORATE MEMBERSHIP — Open to all companies wishing to sustain the organization **\$2,000, annually.**

Limited services are offered to non-profit, educational organizations without charge through the NPE Membership.

Don't be left out. Join ICA.

International Home Computer Users' Association
P.O. Box 371

Rancho Santa Fe, CA 92067

- Individual Membership** I don't want to be left out. I want support!
- Associated Membership** Users' Groups only. We want support!
- Sponsoring Membership** We would like to support ICA!
- Corporate Membership** We would like everyone to know that we support ICA.

Name _____

Address _____

City, State, Zip _____

Special Interests _____

A membership package will be returned by mail!



Software Catalog

Enclosed with this newsletter is the first revision of our Owner Written-Translated Software Catalog since the adoption of the notebook style format. You will notice that over 100 new and revised programs have been added and that many of these new programs are written in TI Extended Basic. We are elated at the overall quality of many of these new programs and have found many of them to contain exciting new programming technics.

As always we have checked all of the programs which we have added for their operational abilities and have found them to be in good

working order. Programs listed in this catalog have been programmed on both 99/4's and 99/4A's and most will run on either machine. There are however several programs that will need some modification in length to operate on the 99/4A.

This is a very simple task in that all needs to be done is to remove enough lines of the program so that it can run in the memory space of the 99/4A. You can readily detect this problem when you are running a program on the 99/4A and get a "MEMORY FULL" error message. The only other quirk that we have noticed is that if the programmer has used lower case letters when

programming on the 99/4A, all letters in lower case will be garbled when run on a 99/4.

We would like to thank the hundreds of 99/4 owners worldwide who have submitted programs to the Exchange and assure you your efforts are greatly appreciated. For those of you who have submitted programs to the Exchange and do not find them in this issue do not be disheartened. We always maintain reserve material and your programs will be placed in the Exchange catalog at a future date.

Look Out American Consumers! Some One Woke The Sleeping Giant!

As most of you know for the past two years now Texas Instruments has been "foolin' around" in the personal computer market place. First with the 99/4 and now with the 99/4A, it seemed to almost everyone that TI lacked direction, foresight, and marketing experience to play in the same ballpark with the established manufactures of personal computers. They have been kicked around by most of the press and attacked on all sides by almost everyone in the computer business including us. Well things are about to change!

Our sources tell us that at a February TI Directors meeting a TOTAL COMMITMENT was given to make the 99/4 project a success. New funds have been pumped into the project and while other divisions of TI are experiencing personnel lay-offs the personal computer section is actually hiring

qualified hardware and software people. Travel and advertising budgets have been reworked and exposure and sales are a daily theme. Inter division lines that once perhaps hampered software development have disappeared and innovative new products and concepts have now been given the go ahead.

To kick off this new TOTAL COMMITMENT TI on March 1, 1982 announced drastic price reductions on two items in its product line. The 99/4A console coupled with a R.F. Modulator is now being advertised and sold by retailers nationally for just over \$299.00. The other price reduction saw a \$100+ drop in the retail price of the popular TI LOGO Command Module which should lead to new demands in both the home and educational markets.

What does all of this mean? Some seem to think that a new computer will be introduced in June replacing the 99/4A. Some think that Command Module and Peripheral prices will follow suite and show

drastic price reductions. But most people we talk to agree with us that TI is simply going after its fair share of the personal computer market before the introduction of new offshore computer products expected later this year. We suspect that TI will build more than 200,000 new 99/4A's over the next 12 months and devise new marketing strategy which will make them a real factor in the personal computer market.

The beauty of this TOTAL COMMITMENT to us who already own a 99/4 or 99/4A is that it will bring new hardware and software products out of the closets from a raft of sources. Third party vendors will not set idly by when so much fringe profit is to be made. New languages and peripherals will come from both TI and Third party sources which will make the 99/4 a valuable tool for both the home and business use.

We here at the Users-Group are very excited about TI's TOTAL COMMITMENT effort and wish them all the success in the world.

**International
99/4
Users-Group**



P.O. Box 67
Bethany, OK 73008
(405) 787-8521

April 19, 1982

Dear Users-Group Member,

For the past 19 months we here at the International 99/4 Users-Group have been providing what we hope has been a valuable service to thousands of 99/4 owners worldwide. All of you have received our Newsletters, Software Catalogs, and Discounted Price lists and thousands of you have supported us with your purchases of our products and services. For that we are eternally grateful.

As the International 99/4 Users-Group continues to grow our overhead costs continue to increase at a disproportionate rate. Additional staffing, equipment, postal and U.P.S. increases, as well as material and printing costs have cut heavily into our operational services budget. Funding for our services have come only from profits on the sale of TI and Third Party products. We do not receive any direct funding from Texas Instruments or other manufacturers or suppliers.

Due to these cost increases we were faced with the decision of either cutting back on the services we offer or the assessment of annual membership dues. This was not an easy decision for us to make as we feel that our service is important to all 99/4 owners. We have however, decided on the installation of an annual membership fee and the continuation of all of our current services as well as the addition of several new services to be announced later this year.

Effective May 1, 1982 to remain a member of the International 99/4 Users-Group and continue to receive our Newsletters, Software Catalog Revisions, Price Lists and New Product Announcement Bulletins you must complete the enclosed membership card and return it with your check for either a REGULAR or PRESIDENTS CLUB membership.

REGULAR MEMBERSHIP

A Regular membership entitles you to all of the services the International 99/4 Users-Group has provided its members for the past 19 months

- Discounted Prices on all Texas Instruments products
- Newsletters and Software Catalogs
- Call in information and referral services
- Software Exchange Library
- New Product announcement bulletins

REGULAR MEMBERSHIP DUES ARE \$12.00 ANNUALLY

PRESIDENTS CLUB MEMBERSHIP

PRESIDENTS CLUB Members will receive the same privileges as REGULAR Members as well as the following additional benefits.


- Every other month you will receive a special Presidents Club cassette tape with 5 Owner Written & Translated programs, an \$80 value
- An Individually numbered membership card
- Additional discounting on TI products for your personal computer from a special PRESIDENTS CLUB price list

PRESIDENTS CLUB MEMBERSHIP DUES ARE \$50 ANNUALLY.

Although the PRESIDENTS CLUB membership may not appeal to everyone, those of you who are considering purchasing in excess of \$150.00 worth of TI products over the next 12 months should weigh the savings involved. Listed below are some examples of PRESIDENTS CLUB Prices:

Product	Retail	Regular	Pres. Club
Ex. Basic.	99.95.	80.00.	71.65
Min. Memory.	99.95.	85.00.	71.65
Arcade Modules.	39.95.	35.00.	29.65
Expansion Box.	249.95.	196.00.	181.75
32K Mem. Card.	299.95.	236.00.	213.15
Disk Mem. Drive.	499.95.	410.00.	354.65
P-code Card.	249.95.	196.00.	181.75

We sincerely regret that we have been forced into a membership fee position, however, we feel sure that the benefits you receive will certainly justify the costs involved.

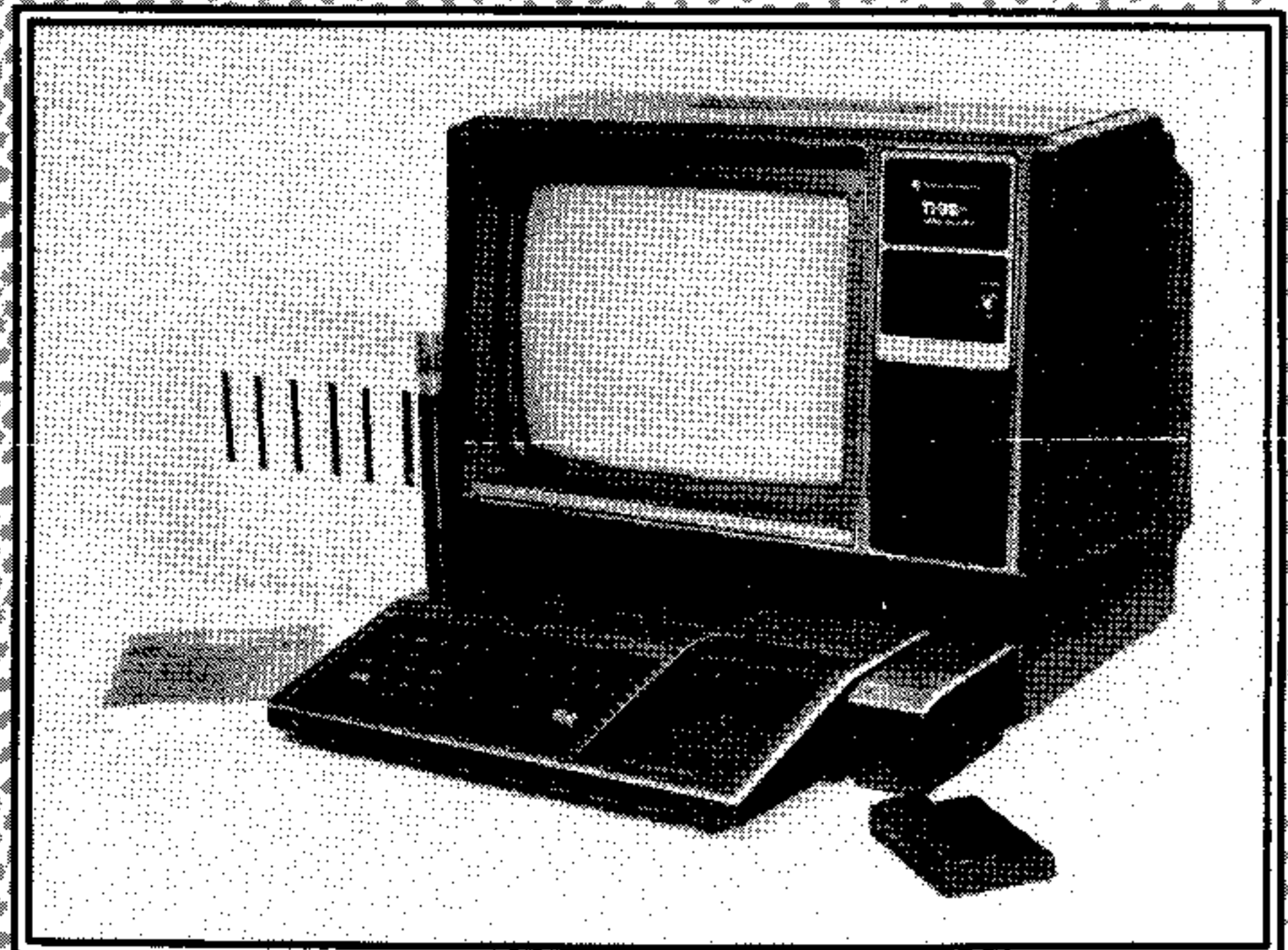
Sincerely,

Charles La Fara
President

Introducing

THE PLATFORM



An economical solution to computer and peripheral placement. Allows you to place your computer, monitor and other peripherals on a standard size desk (21" or larger). Elevates rear peripherals and allows you to bring them close behind the console at a comfortable working position. Covers and protects plug-in connectors and cords. Cleans up that "Cord Clutter". Can be used with a 10", 13", most 15" and some 17" monitors, also designed to hold the peripheral expansion box. Can be used behind the side plug in peripherals to elevate your disk drives, cassette recorders, etc. Use one behind your console to hold your monitor and one on the side to hold other peripherals.



Sturdy construction, made of solid wood with a satin walnut finish and no skid feet, measures 17 1/2" wide, 11" deep, 2 1/2" high. Designed specifically for your TI-99/4 (A) computer and peripherals. Why pay more for a desk than you did for the computer?

Model PH1A Only 19.95

Accessories shown are for demonstration purposes only and are not included. See ordering information inside.



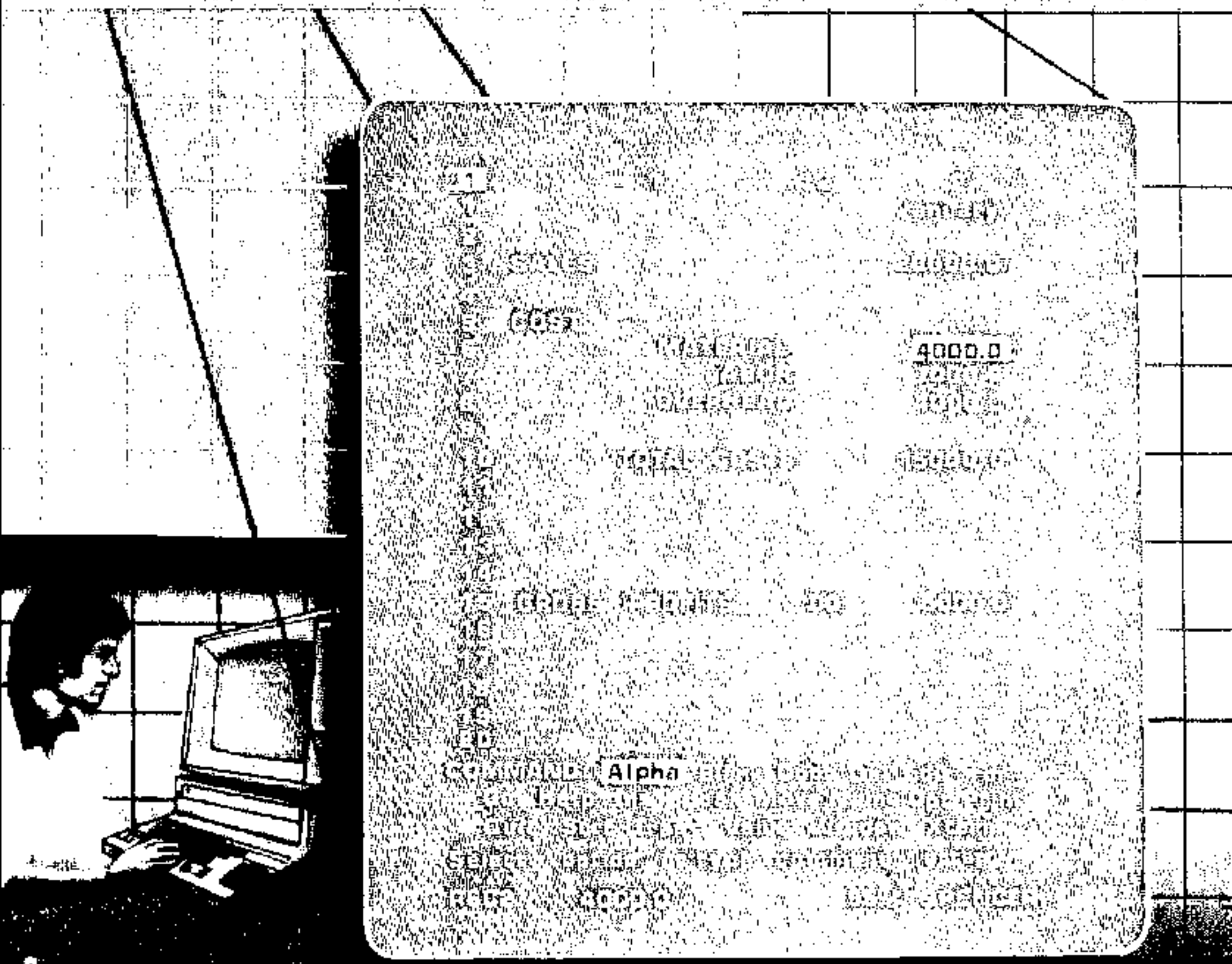
TEXAS INSTRUMENTS HOMECOMPUTER

MICROSOFT* MULTIPLAN*

INFORMATION MANAGEMENT

A tool that helps you deal with spreadsheets for row-column calculations — expense statements, planning forms, and reports.

*Microsoft and Multiplan are trademarks of Microsoft Corporation.

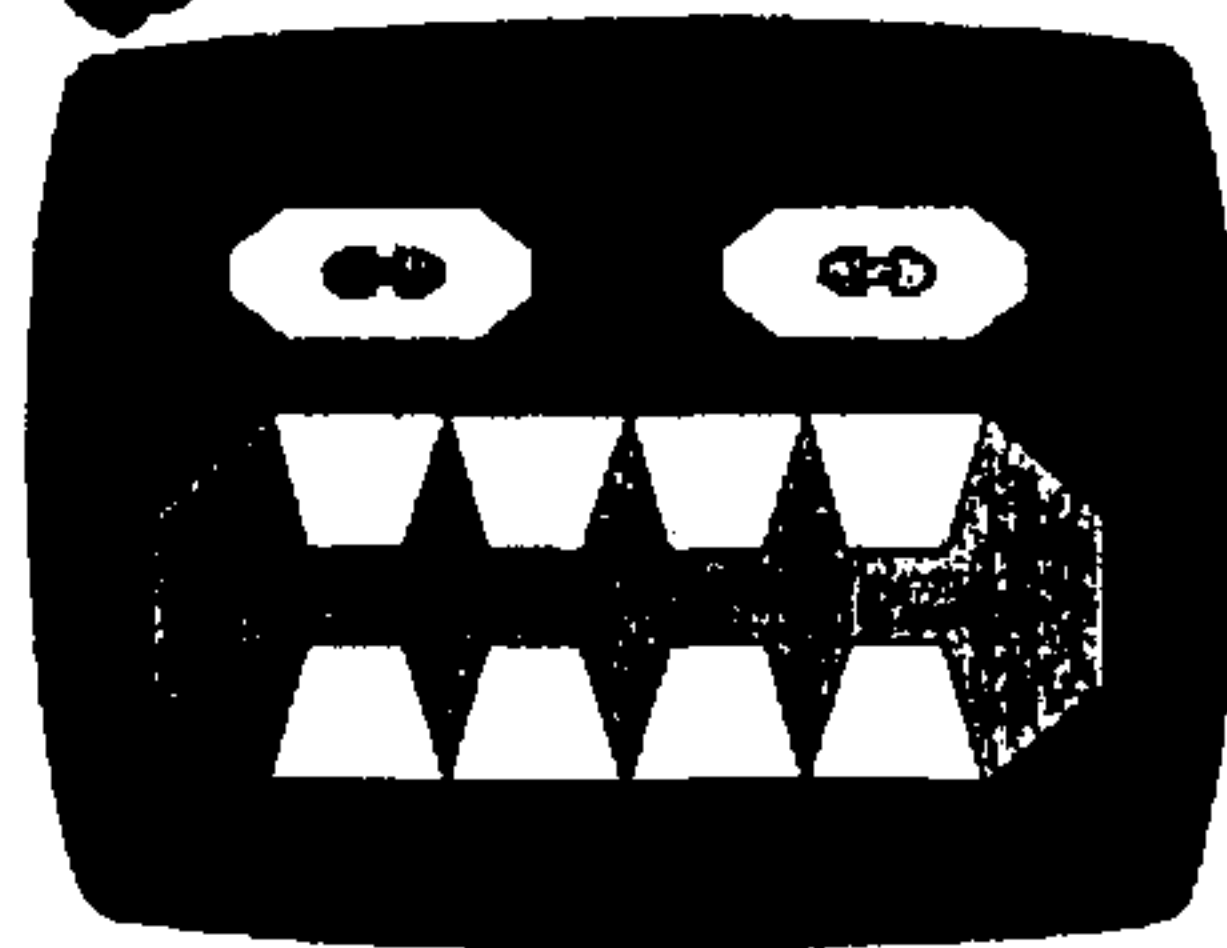


THE MONSTER IS FREE!

During the Texas Instruments Home Computer Free Software Offer.

The Monster, otherwise known to his friends as "Munchman", is one of the most fun and exciting games Texas Instruments has ever had. And now, he can be yours at no cost whatsoever during our Texas Instruments Home Computer Free Software Offer. Here's how it works:

If you buy any four Texas Instruments Solid State Software™ modules, or a Texas Instruments software album (three modules in a convenient storage package) between February 1 and May 15, 1982, we'll send you the exciting new "Munchman Arcade Game" absolutely free. The modules you choose can be from any category: Home Finance, Children's Education or Entertainment. And the Munchman will be on us.



Munchman is an offer worth \$39.95, but with a deal like this, people are going to eat it up. So hurry. Take the coupon in this ad to your participating retail outlet... and set the monster free.



TEXAS INSTRUMENTS
INCORPORATED



Mall to:
"Munchman" Offer
P.O. Box 725, Dept. HC-HBO,
Lubbock, Texas 79491

Yes, I want to set the Monster free. I am enclosing a proof-of-purchase with this coupon. Please send "Munchman" to:

Name _____

Address _____

City _____ State _____ Zip _____ Phone _____

Serial # of TI 99/4 Console _____ Age of Buyer _____ Occupation _____

No. of children _____ Ages _____ Name of store where purchased _____

Intended Use _____ Home _____ Personal Finance _____ Education _____

A Maze Muncher for TI

Robert W. Cashman

creative computing

SOFTWARE PROFILE

Name: Munch Man
Type: Arcade game
System: TI-99/4 or TI-99/4A
Format: Command Module
Summary: Excellent
Price: \$39.95
Manufacturer:
Texas Instruments Inc.
P.O. Box 53
Lubbock, TX 79408

Texas Instruments has developed a series of games for the 99/4 and 99/4A that rival those found in arcade centers. Their latest, *Munch Man*, is a perfect example. It is very similar although not identical, to Pac-Man, and the level of competition that *Munch Man* offers will give the seasoned player all he can handle.

The object of the game is to connect the passages of a maze with the continuous chain that your Munch Man leaves behind as a trail. For every link of the chain that is joined together, the player receives 10 points.

While you are trying to connect your chain together, however, four creatures called "Hoonos" are pursuing you. They are bent on gobbling you up before you can complete your mission. Each one has a different level of intelligence so you must be careful in out-maneuvering them.

Robert W. Cashman, 11 Hallenan Ave., Lawrence, MA 01841.

What can you do to combat this onslaught of creatures? You can locate and eat one of four energizers situated in the corners of the maze. You can't miss these. They look just like the state of Texas. The energizers give you the strength to capture the Hoonos and imprison them in the center of the maze.

You receive 70 points for eating an energizer and 100 for the first Hoono that you catch. Every subsequent Hoono captured doubles the number of points received from the previous capture.

How long can you remain energized? Not long. After a short period of time, the maze begins to flash from blue to red while the captured Hoonos escape. This indicates that your strength is returning to normal.

A player starts each game with three Munch Men, and the game ends, of course, when all of them are eaten. Should a player complete the chain while he still has Munch Men left, the game continues with an empty maze, four more energizers and four different Hoonos.

Munch Man can be played from the keyboard or with joysticks. Use the joysticks. They respond faster, and you will obtain much higher scores.

As is always the case with TI's Solid State Software Command Modules, a well written instruction manual is included.

As far as the quality of the game is concerned, the layout of the maze is terrific. It is three-dimensional and well thought out. Excellent graphics and some really imaginative sounds will keep you going for hours at a time.

I have two daughters and three nephews who are video addicts and range in age from six to fourteen; a better cross section of critics would be hard to find. These kids have played about 100 games on my 99/4 and no other has held their attention as long as this one. □

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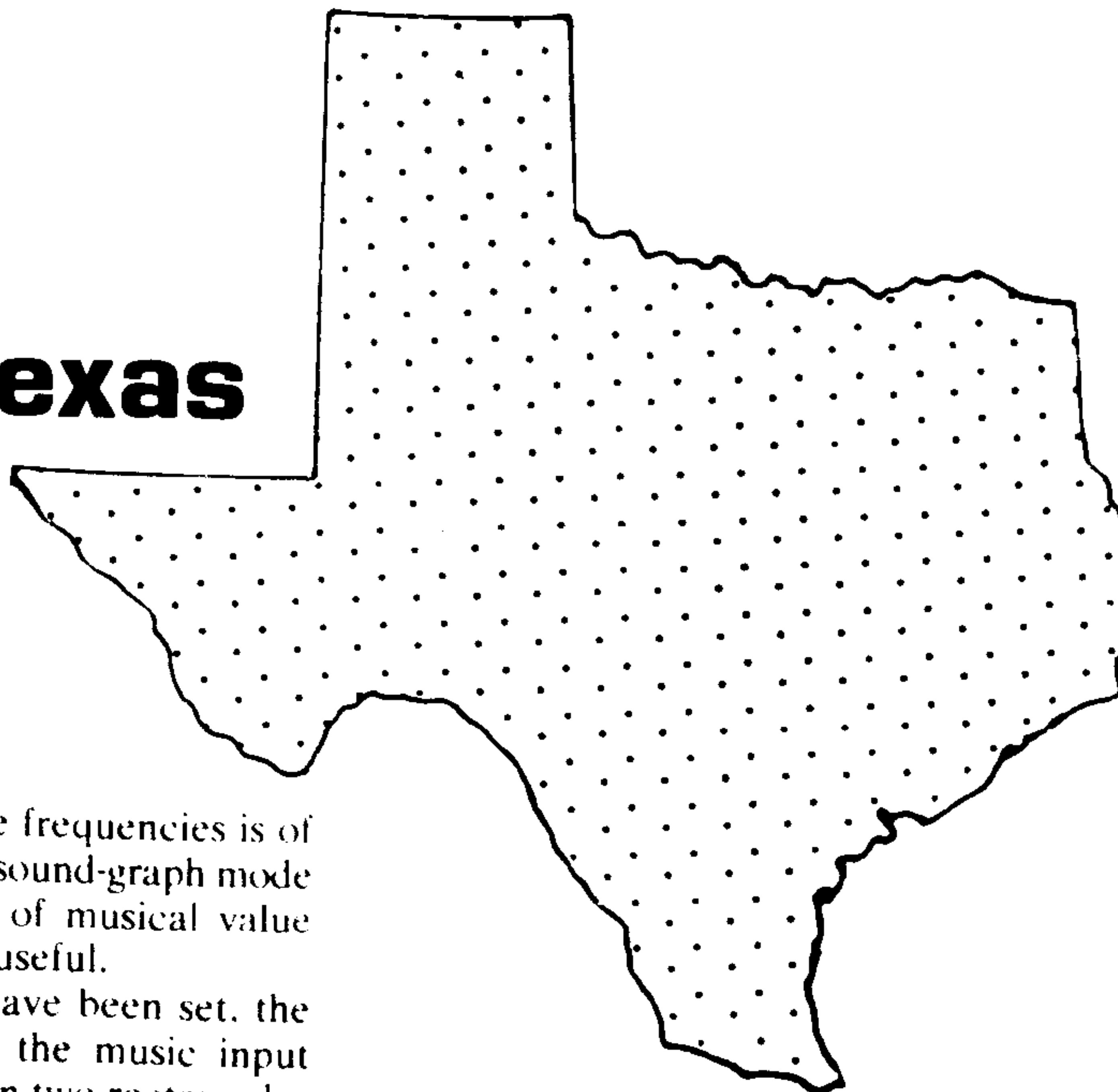


— Apple, TRS-80, Atari, IBM —

Adventure Int'l. - Broderbund - Budgeco - Datamost - Hayden - On-line Systems - Sirius - Visicorp and many more.

Deep in the Heart of Texas

Owen Linderholm



creative computing SOFTWARE PROFILE

Name: Music Maker Module

Type: Music

System: TI 99/4

Format: Module

Language: Machine

Summary: Difficult to use, but worth the price.

Price: \$39.95

Manufacturer:

Texas Instruments, Inc.

P.O. Box 53

Lubbock, TX 79408

From deep in the heart of Texas comes the Music Module, a plug-in module for the TI 99/4 which gives it limited music synthesis capability. No fancy sixteen voice, waveform controlled or stereo output machine, the module provides only three music voices, some volume control and a little bit of noise generation.

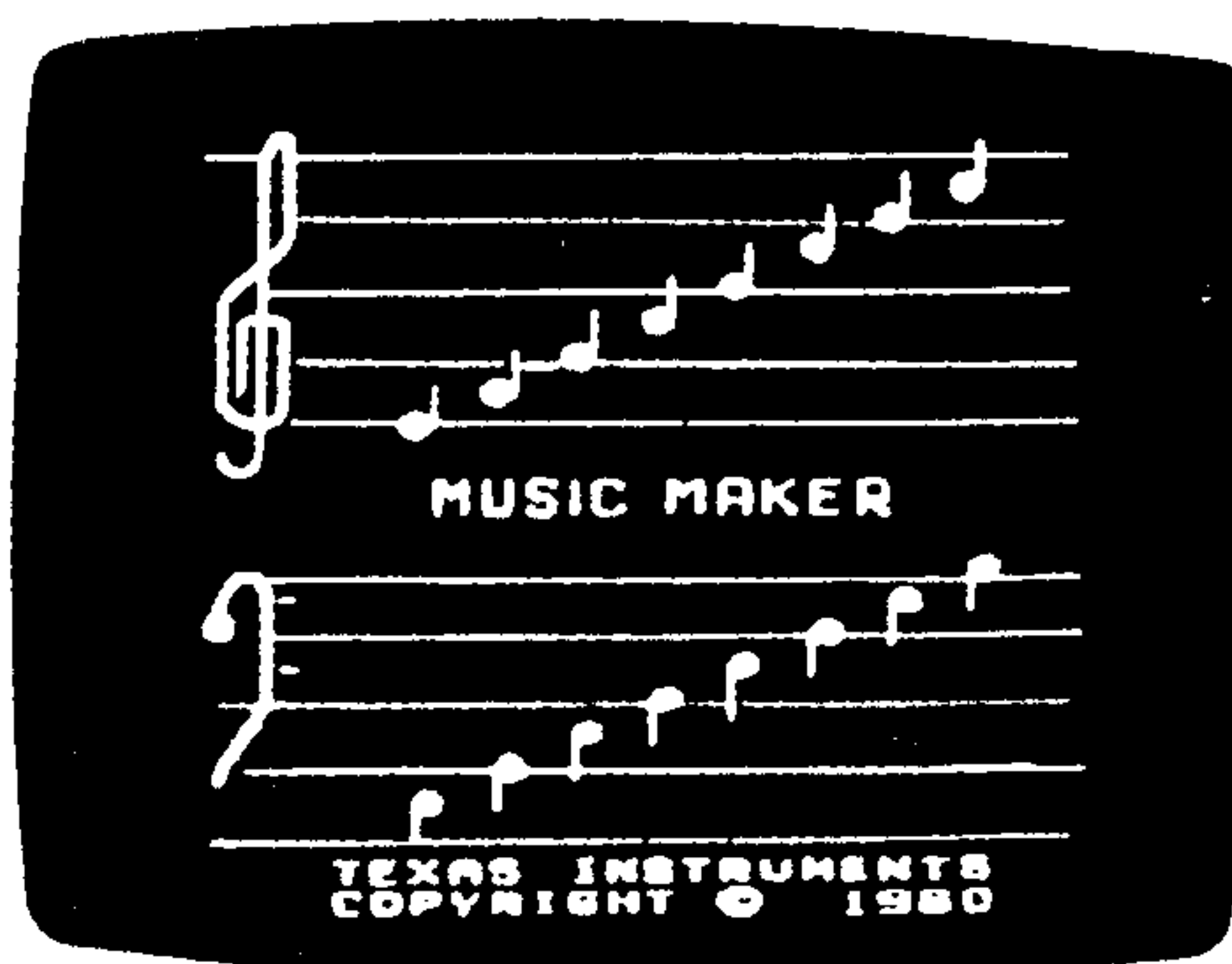
Sound-Graphs

Two modes are available: "sound-graphs" and "traditional," the first is used mainly as a strange noise maker. When you enter this mode you are asked which noise generator you want, what speed at which to play the music and whether you want to change any of the frequencies for the scales. There are eight noise generators available, four of which provide "periodic" noise and four of which provide "white" noise. One generator from each of these two groups plays noise based on the frequency of the third musical voice. When I was experimenting with these generators, I found that they added very little to the sound produced. Of the speeds available, only those between about 15 and 30 were of much use, as those lower than 15 were far too slow to play the music in a recognizable manner.

The ability to change frequencies is of some use, but since the sound-graph mode cannot produce much of musical value this feature is not very useful.

When these values have been set, the computer proceeds to the music input mode. The user is shown two rectangular areas in which he can draw lines which represent various frequencies, volumes and noises. Inputting a measure can be done with the keyboard or the Wired Remote Controllers. I found the keyboard very awkward to use and could only input exactly what I wanted with difficulty.

Editing of the music already entered can be easy or difficult depending on how much needs to be changed and on where and when the mistake is discovered. One very useful editing facility is the ability to copy all or part of a measure already entered. Playback of the music is relatively simple and pleasant effects are obtainable with a little effort. The longest composition can only be 46 measures, which is generally long enough for most purposes but can be annoying if a longer piece is desired.



Traditional Mode

The other mode available is the traditional mode by which music can be entered in standard musical notation. The method of input is similar to the method for sound-graphs. When you enter the traditional mode, you are asked to enter the number of sharps or flats to define the key signature, then the time signature and the speed. All these are necessary and work as they should, except for the speed which is

exactly the same here as for the sound-graphs.

The method of entering music is also the same except that when you wish to change between different types of note, such as between crotchets or quavers, the cursor must be moved from the staff off to the side, where the notes can be changed. This involves a great deal of key pushing and frustration, and makes the entry of most pieces of music a very laborious task.

The staff and the rest of the screen display is very well laid out and the music is easy to read with the three different voices shown in three separate colors. Another feature is that each note can have independent volume control on a scale of one to eight. This allows crescendos and decrescendos and so on, but is also a bit difficult to use.

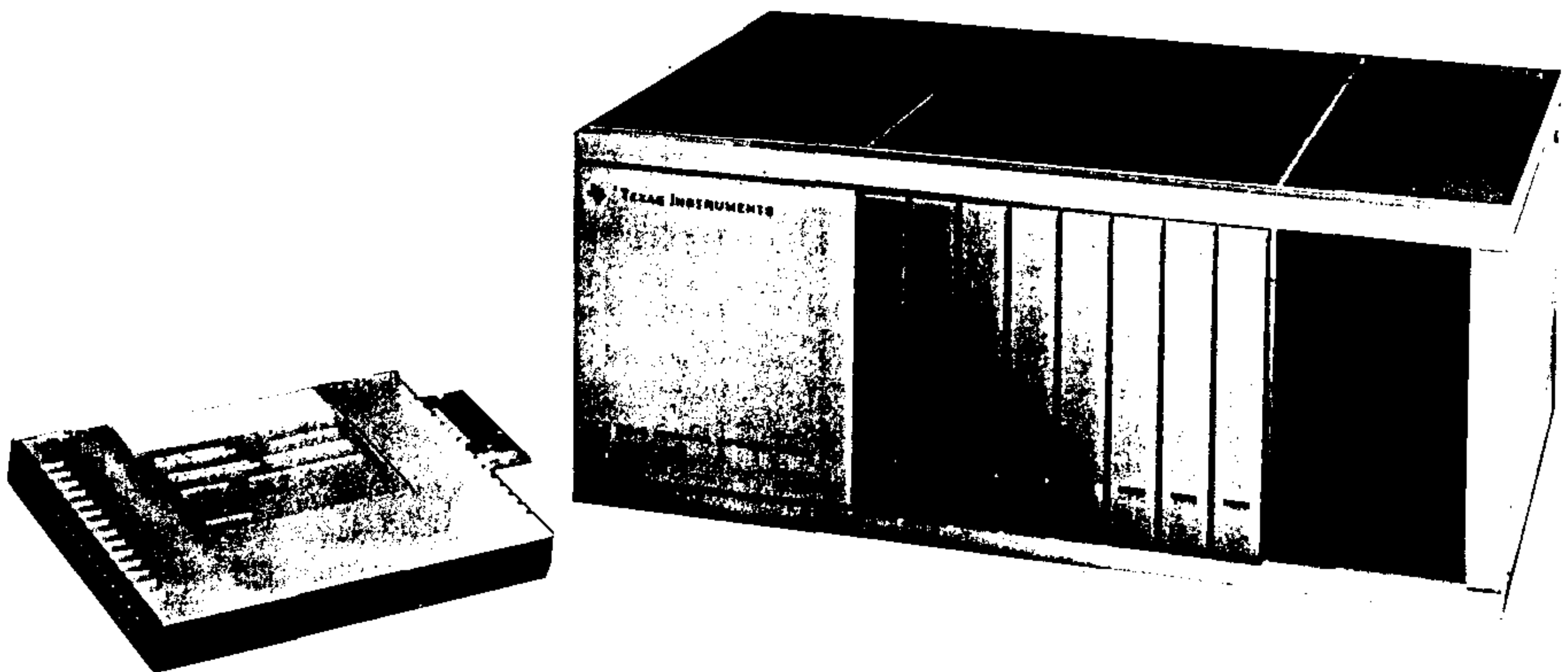
Editing and playback are similar to the sound-graph mode and are reasonably straightforward. Music can be easily stored on cassette or disk and retrieved. It is also possible to print out music if the TI thermal printer is connected. These are very useful functions and not available on many more expensive and complicated computer music synthesizers. The other major disadvantage of the module is its three-octave range.

Now comes the great advantage of the Music Maker Module: the extremely low price of \$40. At that price, the Music Module is a worthwhile investment for the average user who is not thinking of recording contracts or playing at major concert halls. It is also quite possible that using the remote controllers makes the entry of music a lot simpler. □



Peripheral Expansion System and Accessory Cards

Peripheral Expansion System, Model PHP 1200. RS-232 Card, Model PHP 1220. Disk Controller Card, Model PHP 1240. Expansion Box Disk Drive, Model PHP 1250. Memory Expansion Card, Model PHP 1260. P-Code Card, Model PHP 1270.



- Simplified, space-saving system expansion.
- Centralized convenience.
- Eliminates "cable-clutter."
- Makes it easy to customize your system with a selection of plug-in accessory cards.
- Choose now from RS-232 Interface, Disk Memory System, Memory Expansion (RAM), P-Code language access — with room for more as they become available.

The TI Peripheral Expansion System allows you to add accessories to your computer system in a single, convenient location by inserting them in the peripheral system itself. The package includes the

Peripheral Expansion System and the Peripheral Expansion Card with a connecting cable, which combine to serve as an interface between the computer console and the accessories in the unit.



INCLUDES A PROGRAM DISKETTE AND A DATA DISKETTE

by Aardvark Software, Inc.

Designed for use with the TI Home Computer, the TI Color Monitor (or a TV with the TI Video Modulator), the TI Disk Memory System (TI Disk Drive Controller and one to three TI Disk Memory Drives), the TI Memory Expansion unit, and the TI P-Code unit — all sold separately.

Maintains your year-round tax-planning records and performs comprehensive tax calculations, within seconds and with computer accuracy.

MEMORANDUM
26 OCTOBER 1982

TO: ALL M&FS PERSONNEL

FROM: KAY ABRAMS AND FRED NOVAK

SUBJECT: DEPARTURE OF STEVE FORD AND JOHN PHILLIPS

EFFECTIVE NOVEMBER 1, STEVE FORD WILL BE TRANSFERRING TO TI'S COMPUTER SCIENCES LAB WHICH IS PART OF THE CENTRAL RESEARCH LABS. STEVE HAS BEEN INSTRUMENTAL IN BRINGING THE ASSEMBLY DELTA SYSTEM TO THE LEVEL OF SUCCESS THAT IT NOW ENJOYS. STEVE WILL BE GREATLY MISSED, BOTH AS CONTRIBUTOR AND TEAM MEMBER.

CONSUMER PRODUCTS DIVISION IN LUBBOCK MADE JOHN PHILLIPS AN OFFER HE COULDN'T REFUSE -- DEVELOPING SOFTWARE APPLICATIONS FOR THE T.I. HOME COMPUTER. JOHN'S TRANSFER WILL BE EFFECTIVE MONDAY, NOVEMBER 1. JOHN RECENTLY RECEIVED RECOGNITION IN T.I. NEWS AS A MAJOR CONTRIBUTOR IN THE EMPLOYEES CONTEST TO DEVELOP GAMES FOR THE HOME COMPUTER. SINCE JOHN JOINED OUR DEPARTMENT, HE HAS MADE CONTRIBUTIONS TO SEVERAL PROJECTS, INCLUDING BILL OF MATERIAL AND PRODUCTION SUPPORT. WE WILL MISS JOHN AND WISH HIM WELL IN HIS CAREER.

PLEASE JOIN US FRIDAY, OCTOBER 29, AT 11:00 A.M. AT BIRRA PORETTI'S (LOCATED AT THE NORTHEAST CORNER OF PARK LANE AND CENTRAL EXPRESSWAY), IN WISHING JOHN AND STEVE THE BEST OF LUCK IN THEIR NEW ENDEAVORS. IF YOU PLAN TO ATTEND, PLEASE CONTACT FRED OR KAY BY THURSDAY AFTERNOON.

REGARDS,

FRED AND KAY

3907 Celeste Drive

San Diego 99/4 Users' Group

Oceanside, Ca. 92056

SAN DIEGO USERS newsletter

MAY 18 1982

The next meeting of the San Diego 99/4 Users' Group will be May 28th, Friday. The location will be General Atomic Co. in La Jolla, Room T-215. We will begin at 7:00PM.

GA is located at the Genessee Dr. off of highway 5. Go west to John Hopkins Drive and turn right (first light after coming off the freeway-top of the hill). Go to the guard shack and tell them you are going to the TI meeting.

We would like feedback regarding ideas for inter-club exchanges. That is, how about members playing chess with members from another group via the phone and modem. Or how about an evening where we chat with the St. Louis Group via the modem and perhaps (Texnet) exchange voice chat.

NOTES

...
The capacity of a diskette is 90K bytes on the TI system.

The capacity of a cassette is more than 12K bytes. The amount that can be loaded into the 99/4A memory is, however, only 12K bytes.

...
GPL-Graphics Programming Language is a development utilized on the 99/4(A) system. It is an Assembly-level language.

If you are looking for a good article about the Mini Memory Module the 99er Magazine issue #5 has an excellent look at the Mini Memory.

The St. Louis 99ers Users Group is interested in sharing software and would like information on setting up a "Ringwraith's Lair" evening. That is an evening dedicated to that one game.

KEY BOUNCE CORRECTED IN 99/4A

TI has indicated that the key bounce problems many users have experienced with the 99/4A have been corrected. The problem originated in keyboards supplied by one of the two vendors used by TI.

There is no word about possible correction on units installed. Write to P.O. Box 53, Lubbock, TX 79408 and ask for further details. Address your letters to Texas Instruments Customer Relations.

SALES ARE BRISK AT TI

Texas Instruments noted that the number of 99/4A units manufactured in March topped total units sold in 1980.

PERIPHERAL BOX ON TIME

The peripheral box and cards are scheduled to be available starting in June.

FIRST DRAFT, PRELIMINARY
COPY....NOT TO BE RELEASED

THE TEXAS INSTRUMENT HOME COMPUTER SOFTWARE DIRECTORY

June 2, 1982

THE FINANCIAL PICTURE

WHAT DEALERS EARN FROM SALES OF SPIN SUBSCRIPTIONS

HOW MUCH IS EACH SALE WORTH?

* When a dealer sells a SPIN subscription to an elementary, middle, or high school, or Intermediate Service Agency (ISA), the subscriber is billed \$150 by BRS for the SUBSCRIPTION INITIATION FEE. Of this, the dealer receives:

\$75.

* As the subscriber uses SPIN, he is charged \$18 per hour for CONNECT TIME, regardless of the online activity involved (e.g., electronic mail, data base searching, etc.). Of this, for six years following the sale of the subscription, the dealer receives:

\$1.76 per hour.

* Whenever the subscriber searches the SPIF data base, he is charged a SPIF ROYALTY of \$10 per hour in addition to the connect time fee. Of this, for the six year period following the sale of the subscription, the dealer receives:

\$2.35 per hour.

* As of September 1982, the average SPIN subscriber was making the following usage of SPIN:

Total usage: 2.5 hours per month
Electronic mail: 15%
SPIF searches: 15%
Searches of other data bases: 70%

If these levels of activity were to apply to every subscription sold by a dealer, then his expected earnings from the sale of EACH subscription would be, for subscriptions in use throughout the year:

\$138.45	First Year (\$75 subscription + \$63.45 use)
63.45	Second Year (usage only)
63.45	Third Year (usage only)
63.45	Fourth Year (usage only)
63.45	Fifth Year (usage only)
63.45	Sixth Year (usage only)

\$455.70	SIX YEAR TOTAL

Of course, if the subscriber increased his monthly SPIN usage at any time during the six year period, the dealer's earnings would be even greater. DEALER SERVICE WILL BE A KEY FACTOR IN ACHIEVING INCREASED USAGE RATES FOR SUBSCRIBERS.

In summary, for the indicated levels of usage, each subscription sale is worth \$455.70 over a six year period, of which the dealer can expect to receive roughly 30% in the first year, and the balance in equal installments for the next five years.

HOW MUCH CAN BE EARNED IF SUBSCRIPTION SALES RUN FROM 1 TO 10

PER MONTH?

* The following chart shows a dealer's total earnings each year for nine years, for rates of subscription sales ranging from 1 to 10 per month: (You will probably be interested to know that in August 1982, BRS's single SPIN sales person brought in 30 subscriptions, nationwide!)

		RATE OF SALES				
Sales/month	1	2	4	6	10	
Sales/year	12	24	48	72	120	
YEAR	TOTAL SPIN REVENUES PER YEAR					

1	\$1,280	\$2,560	\$5,125	\$7,685	\$12,805	
2	2,040	4,085	8,170	12,255	20,420	
3	2,805	5,607	11,215	16,820	28,035	
4	3,565	7,130	14,260	21,390	35,650	
5	4,325	8,655	17,305	25,960	43,265	
6	5,090	10,175	20,350	30,525	50,875	
7	5,090	10,175	20,350	30,525	50,875	
8	5,090	10,175	20,350	30,525	50,875	
9	5,090	10,175	20,350	30,525	50,875	

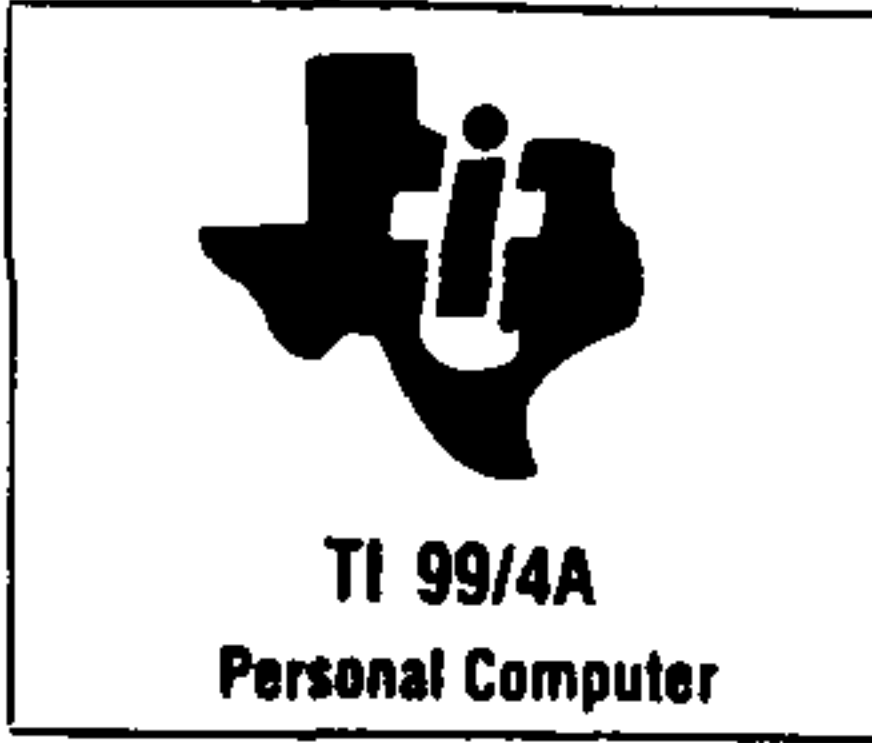
Notice that dealer earnings increase each year for the first six years, and then level off. Why is this true? First, remember that this table assumes that the dealer's rate of subscription sales remains the same for the nine year period (e.g., the righthand column gives annual earnings for a constant rate of 10 subscription sales per month). In year 1 the dealer earns \$75 per subscription for each new subscription, plus usage earnings for the subscriptions brought in during the year (if subscriptions are sold at the same rate every month, the average subscriber will have used SPIN for six months by the end of the year). In year 2, the dealer continues to earn usage fees for the subscriptions he sold in year 1, and also receives earnings for the new sales made in year 2. Thus, dealer earnings increase every year through the end of the sixth year. Since dealers share in subscription usage fees only for the first six years of the subscription's life, beginning with year 7 (if the rate of sales per month has remained constant) the dealer will be "losing" as many old accounts as he is gaining new accounts -- thus levelling off his annual earnings.

Is there any way a dealer can keep his SPIN earnings increasing after the sixth year? Of course! He can work with his ongoing accounts to increase their average monthly SPIN usage, and he can increase his monthly rate of SPIN subscription sales. Extra effort should be rewarded by extra earnings.

NOTES: (1) All of the preceding calculations assume that no changes occur in the pricing of SPIN by BRS. See the SPIN dealer agreement for an explanation of the pricing.

(2) Dealers may also sell differently priced SPIN subscriptions to postsecondary educational institutions (royalty and connect time fees are higher for these institutions). These are also explained in the dealer agreement. In brief, when there is a \$150 subscription initiation fee, the dealer receives \$75; also, the dealer receives 9.4 percent of the subscriber's connect time fees (Note: At the \$18/hour rate ONLY, this percentage is 10) and 23.5 percent of the subscriber's SPIF royalty fees for the first six years in which the subscription is in effect.

NEW PRODUCT & PRICE SHEET — FALL 81 — SPRING 82



(213) 873-6112 SOURCE—TI0166

CALVERT ENGINEERING, INC.

TI — 99/4A

TEX-COMPTM USERS SUPPLY DIVISION

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

Dear TI-99/4 Users:

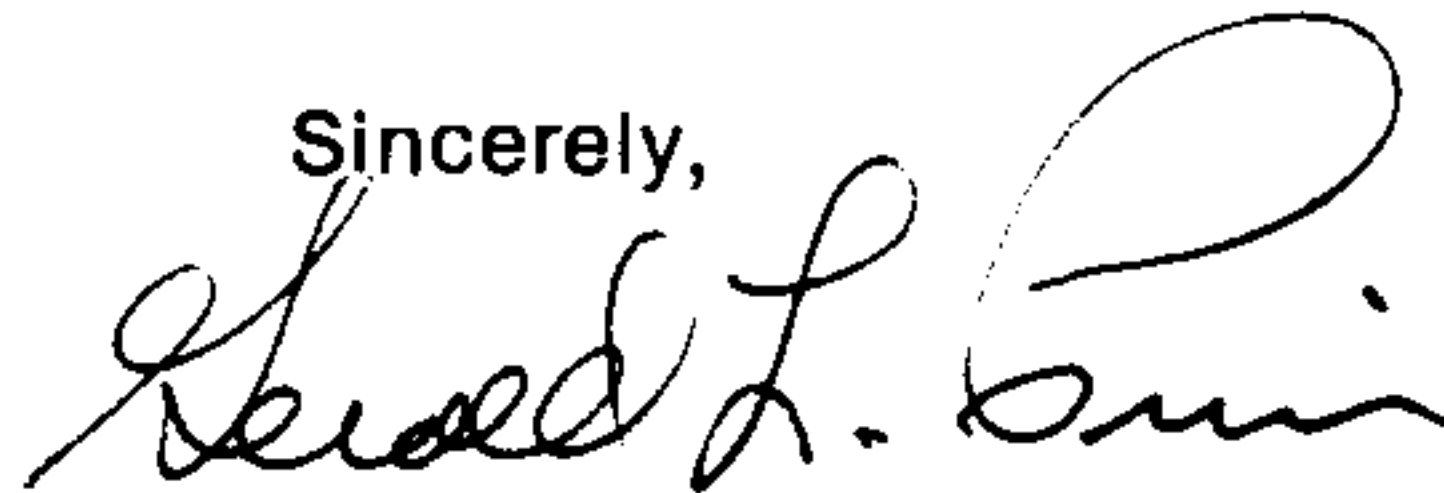
Shortly after the introduction of the TI-99/4 personal computer in 1980, Calvert Engineering, a major manufacturer of fluid moving equipment for over twenty years, recognized the potential of this powerful 16 bit micro and developed proprietary fluid mechanics software to assist in the design and development of products for firms such as 3M, Xerox, and General Dynamics.

At the request of some of our customers, we became a TI-99/4 dealer and began to market systems comprising TI-99/4 hardware and our software. Many of these purchasers desired to acquire additional TI hardware and software and to accommodate them, we began to market the complete TI-99/4 line at professional discounts to our established accounts.

Due to increasing requests, Calvert has established a separate TEX-COMP Division to supply TI-99/4 users with the complete line at professional discounts. Most available items are in stock or can be obtained directly from TI on a "next day" basis. Our price sheet is attached and offers meaningful savings to seasoned users who do not require personal demonstration and assistance. As a TI direct account, we have met the high standards Texas Instruments has set for a dealer to qualify for this relationship which assures you the user of the best possible service and reliability.

Feel free to call direct to discuss any specific requirement.

Sincerely,



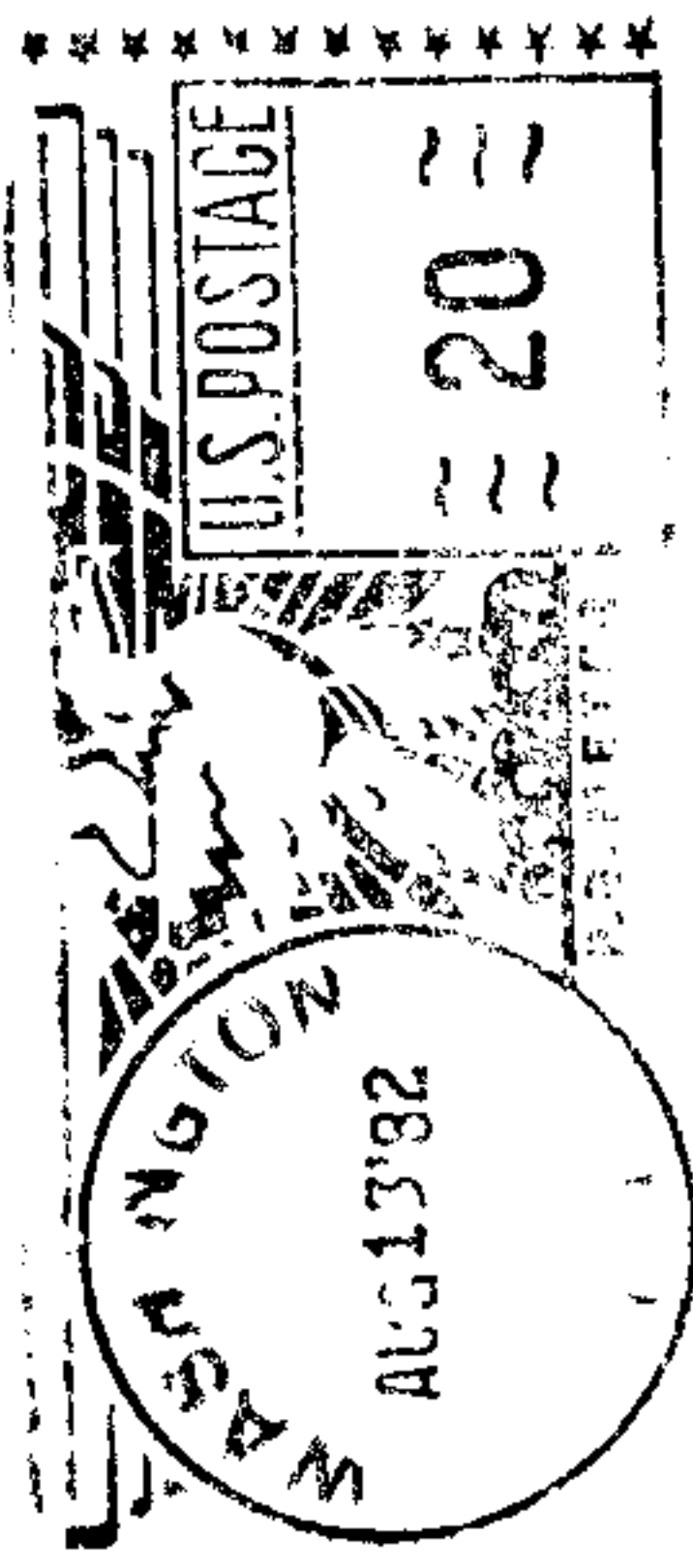
Gerald L. Price

V. P. TEX-COMP DIVISION

.....**Texas Instruments TI-99/4A — COMPUTERS, COMPONENTS AND SOFTWARE**.....

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TEXAS INSTRUMENTS HOME COMPUTER

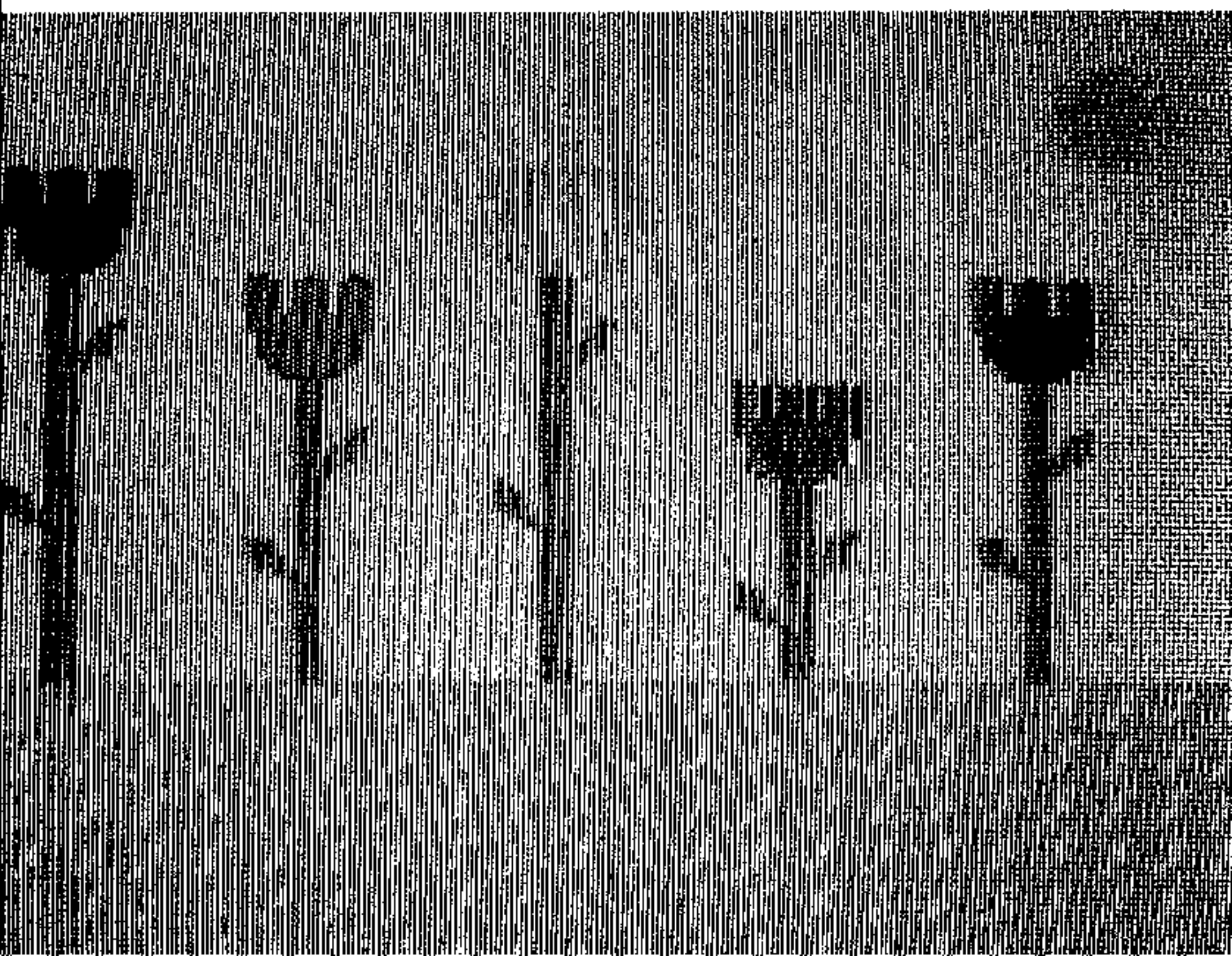
TI LOGO II

EDUCATION

SOLID STATE CARTRIDGE

Features the TI Memory Expansion Unit. The optional TI Disk Memory System or a cassette reader and recorder, if required to save programs.

TI LOGO offers children an exciting opportunity to explore mathematical concepts, directionality, communication, and programming. Additional memory space, large sprite graphics, and music enhance the educational value of the program.





TEXAS INSTRUMENTS HOME COMPUTER

T-WRITER WORD PROCESSOR

INFORMATION MANAGEMENT

Brings many features of large word processors to the TI-99/4A Home Computer, including text editing, search and replace, overstriking, and more.







TI Home Computer
Catalog

TRONICS

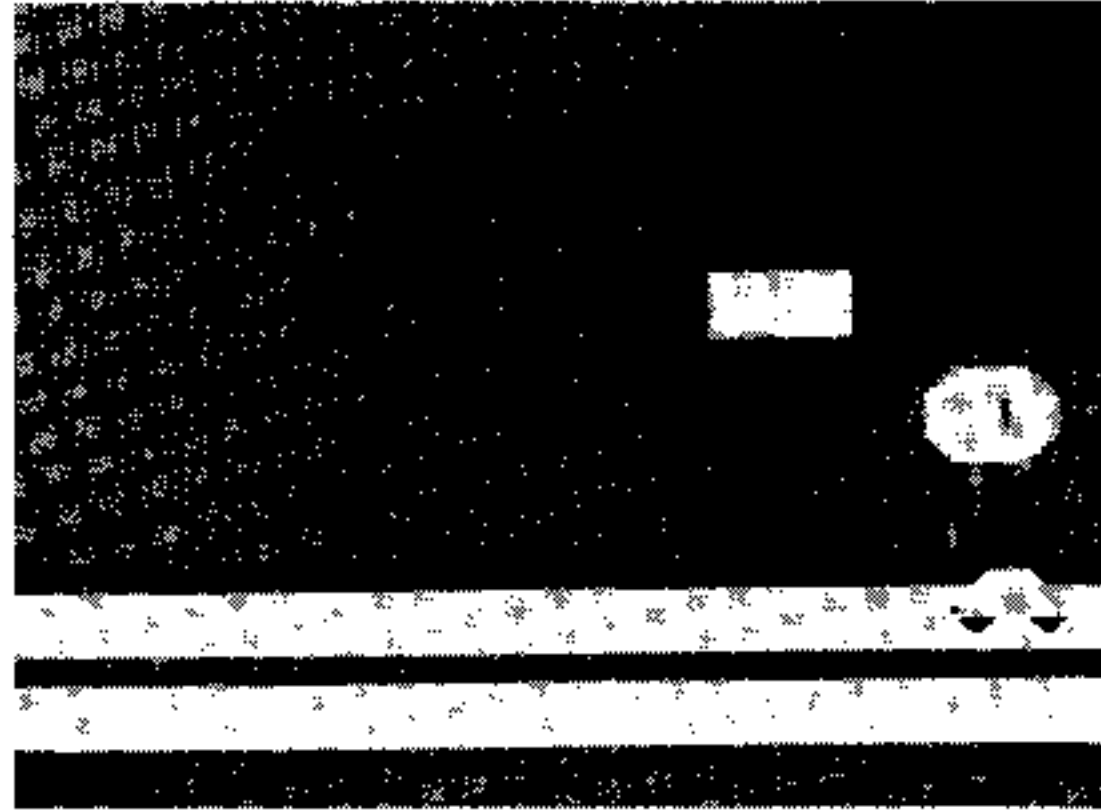


User's Newsletter

TI Introduces "Speaking" Math Series

Texas Instruments introduces an innovative Mathematics Courseware Series of *Solid State Software*™ Command Modules developed in conjunction with Scott, Foresman and Company, a leading educational publisher. The first three modules—Addition and Subtraction 1, Addition and Subtraction 2, and Multiplication 1—are geared for the elementary level student. The modules work with or without the Texas Instruments *Solid State Speech*™ Synthesizer (sold separately).

Each module contains activities designed to challenge a child with colorful, interesting



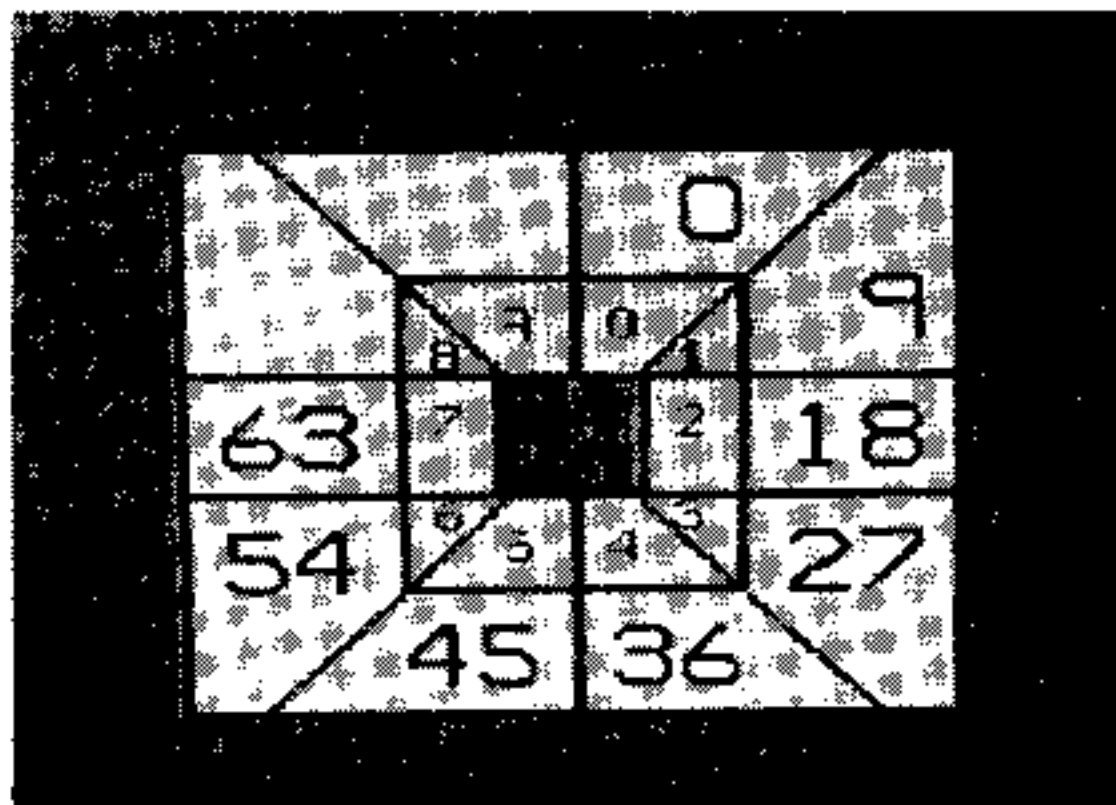
Addition and Subtraction 2 guides a child through the addition and subtraction skills for numbers up to 18 with colorful tutorial routines and reinforcing drills.

practices that include tutorial routines and reinforcing drills. The Addition and Subtraction 1 module begins by teaching the basic concept of counting from zero to nine. Then, the principles of addition and subtraction are introduced using these numbers. The Addition and Subtraction 2 module extends the fundamentals of these skills to include numbers up to 18. The Multiplication 1 module provides practice in the basic multiplication concept for factors zero through nine. The modules present addition, subtraction, and multiplication in both vertical and horizontal formats.

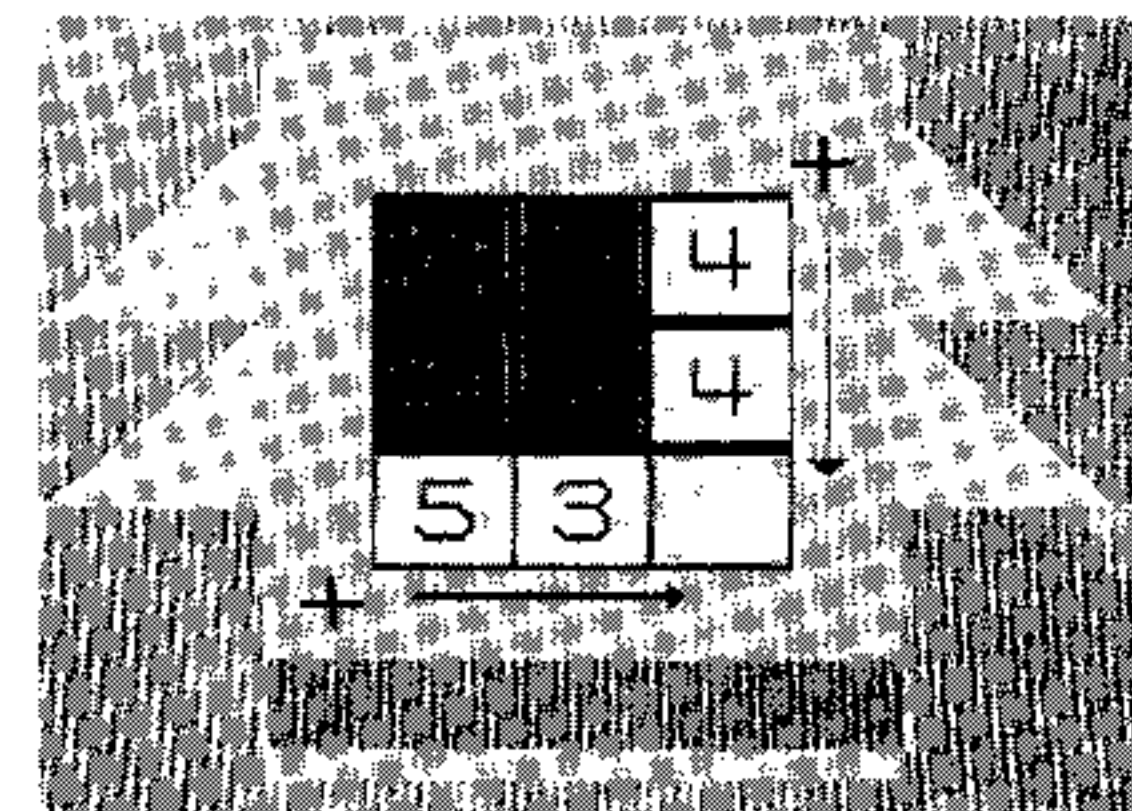
The optional Speech Synthesizer adds the feature of

computer-generated speech to the color graphics and musical sounds of the computer. The computer's voice then can give directions, read the equations, and encourage the child to "Try again" when he or she gives an incorrect answer. The addition of speech strengthens the learning process since the child can hear, as well as see, the correct answers.

The suggested retail price for Addition and Subtraction 1 (model number PHM 3027), Addition and Subtraction 2 (model number PHM 3028), and Multiplication 1 (model number PHM 3029) is \$39.95 per module. The suggested retail price of the Speech Synthesizer is \$149.95.



TI's Addition and Subtraction 1 Command Module makes learning addition and subtraction facts for numbers zero through nine fun and challenging. The Speech Synthesizer is optional.



Multiplication 1, developed by TI in conjunction with Scott, Foresman and Company, makes the learning of basic multiplication facts an exciting experience.

Newest Software Packages from TI

Texas Instruments now adds 11 more software packages to the growing list of applications programs available for the TI-99/4 and TI-99/4A Home Computers.

Munch Man

Four cunning Hoonos are in pursuit of your Munch Man. Can he make it to an energizer

in time to change the attack or will the Hoonos devour him? With the Munch Man *Solid State Software*™ Command Module, you must outmaneuver the Hoonos, as you try to clear the maze by eating all the dots, without being eaten by the Hoonos.

You start the game with three Munch Men, one already

in the maze and two in reserve. Four Hoonos are ready to escape from a black cell seconds after the game begins. If your Munch Man is eaten, the maze freezes, returning these tricky Hoonos to the black cell, while another Munch Man appears at the bottom of the maze.

(see NEWEST SOFTWARE, page 2)

The Sleeping Giant Stirs

Owen Linderholm

Creative Computing SOFTWARE PROFILE

Name: Extended Basic
Type: Language
System: TI 99/4
Format: Module
Language: Machine
Summary: Worth every penny
Price: \$99.95
Manufacturer:
Texas Instruments, Inc.
P.O. Box 53
Lubbock, TX 79408



Until now the capabilities of the TI 99/4 have been severely limited because the Basic supplied with the machine was not as useful as that supplied with many other machines. Many of its shortcomings still remain, but for certain applications, the TI has become a computer that not only equals but often outdoes its rivals. The old Basic was extremely slow and did not make good use of many of the features of the computer.

Arrays were limited to three dimensions, multiple statement lines were impossible, graphics handling was possible but difficult, and many commands considered standard on other computers were either absent or available only in a limited form. While some of these problems remain, others have been solved and a few new commands never dreamt of have been added.

The new Basic comes (in its preliminary form) as a black box, about half the size of a disk drive, which plugs into the ROM socket on the front of the computer. It costs approximately \$100 and is worth every penny.

Some of the more advanced features include subroutines which operate exactly like Fortran subroutines, graphics which operate independently of program control and a Basic which does most of the things we have come to expect from Microsoft Basic.

The manual that comes with the Basic seems to include everything in the "User's Reference Guide," plus descriptions of the new commands. It lists near the beginning all the changes that take place when the new ROM is plugged in. There is a long list of new instructions, functions and commands. Also, at the end are mentioned the disadvantages that accompany the new Basic. These include a loss of 864 bytes, a loss of 16 user programmable characters and the inability of some TI Basic programs to run in TI Extended Basic. So far I have not been able to find anything else. Graphics buffs who think that the loss of 16 programmable characters is serious are advised to reserve judgement.

Taking some of the less exciting features of the Basic first, I will look at the ACCEPT statement. This is a very advanced form of the INPUT statement and allows you to specify input fields anywhere on the screen, clear the screen before input, beep, put default values in the input field and verify that the data input is of the type required, all in one statement. The DISPLAY statement has been improved to allow one to do most of these things with output.

Other improvements are: multiple statement lines, with :: as the separator; the inclusion of the command RUN as a program statement; IF-THEN-ELSE con-

structions improved to Microsoft standard; MAX and MIN functions; a pre defined constant pi (guess what?!); improved error handling, including the ability to read protect a Basic program using a Basic command; read protection for disk files; and a few other changes or improvements of somewhat lesser importance.

We now come to the goodies. Leaving the best for last (always a good policy), the next thing to look at is the formation of what TI calls subprograms, subroutine that can be called with a parameter list exactly like Fortran subroutines. Suppose we decide to have a subprogram called TEST which multiplies two numbers together, adds one of the numbers to the result and then prints it. This can be done in ordinary basic by saying:

```
10 DEFFNA(X,Y)=X*Y+X
20 INPUT A,B
30 Z=FNA(A,B)
40 PRINT Z
```

but this is not a subroutine and it never can be in ordinary Basic, since it will only work on the variables A and B. In TI Extended Basic this can be done with:

```
10 INPUT A,B
20 CALL TEST(A,B)
30 GOTO 10
40 END
50 SUB TEST(X,Y)
60 PRINT X*Y+X
```


70 SUBEND

This works, and if you don't understand the usefulness of this facility, just consider the fact that A or B could be replaced by any variable. The same result could be achieved another way.

```
10 INPUT A,B
20 CALL TEST (A,B,C,)
30 PRINT C
40 GOTO 10
50 END
60 SUB TEST(X,Y,Z)
70 Z=X*Y+X
80 SUBEND
```

In this version, the variable Z can be used in the main program as well. A subprogram can be as long as you wish consistent with the memory available. As you can see, this is an *extremely* useful feature of the Basic.

Another of the more interesting features of the machine is its ability to speak using the plug-in speech synthesizer module. In the ordinary Basic, speech synthesis requires an extra ROM. With the new Basic the computer can be given a vocabulary of approximately 300 words which allow you to make limited phrases. The manual also mentions creating your own vocabulary but does not tell you how to do this. Nevertheless certain of my colleagues have managed to produce some unusual sentences.

The most interesting feature of the new Basic is the use it makes of the graphic capabilities of the TI 99/4. These are phenomenal, and it is surprising that the machine has not made better use of them up to now.

The single option I found most amazing is that once a graphics character called a "sprite" has been set up, it will continue to move in a specified direction on the screen while the computer does something else like calculating the square roots of the first 100 prime numbers. The "sprite" itself can be made up of either one or four characters which can be defined by you or be part of the standard character set of the computer. For instance,

```
10 CALL CLEAR
20 CALL SPRITE (#1,79,14,1,1,5,5)
30 GOTO 30
```

will clear the screen and set a magenta colored "0" moving diagonally across the screen very slowly. If the program is not interrupted, it will *never* stop! This may not seem terribly exciting, but consider the fact that the program is doing nothing to the character; it is only executing the loop 30 GOTO 30. Line 10 of this program clears the screen, line 20 sets up the figure as character 79 (an 0) with color 14 (magenta), starting point (1,1) (the top left corner of the screen), and velocity (5,5) (5 units in the x-direction and 5 units in the y-direction per unit time). As you can see,

all the graphics routines are performed by subprograms built into the machine.

Up to 28 of these "sprites" can be created and used at one time. They can be defined in any shape you wish that can fit into an 8 by 8 format. This is done by creating a shape table in a string, which is easily done, and then using the CALL CHAR command to define the shape. I will include an example later. Once the character is defined, it can be used simply as a character or as a "sprite" as you wish.

After a "sprite" is created several things can be done to it. You can enlarge it, change its color, change its position, change its motion, discover if it has run into another "sprite" on the screen, find out where it is and find its distance from a point on the screen or from another "sprite." These are all done with simple CALLS. Everything is explained fully in the manual and it doesn't take long to create some pretty nifty graphics.

A sample program that draws 16 detailed skulls and crossbones on the screen, each about three centimeters across, and then moves them all about, changing screen color whenever one

meets another, is given in Figure 1 to show how easy it can be. Incidentally, the background to a "sprite" can be made transparent, so when one crosses another you can see it pass over or under the other.

Line 10 clears the screen, then line 20 and line 30 set up the skull and crossbones shape. The next 16 lines set up the actual figures on the screen. Line 195 magnifies the figures so that they take up the space that 16 ordinary characters would. Then the last few lines check for a meeting between the figures and if there is one the screen color is switched to a random color and the sequence is continued until interrupted.

This is only a simple demonstration of the power of the graphics commands. It uses only one shape and ignores many of the built-in functions, but it serves to show what can be done.

With the addition of Extended Basic, the 99/4 still lacks some very useful features, like machine code, which is still practically unavailable, but it seems that TI has finally begun to exploit the potential of its personal computer. □

```
10 CALL CLEAR
20 A$="EOEOEO2F3F19191F1EOEO1A3F27E0C00
70707F4FC9898FB7870F058FCE40703
30 CALL CHAR(96,A$)
40 CALL SPRITE(#1,96,1,1,1,0,10)
50 CALL SPRITE(#2,96,2,1,1,0,-20)
60 CALL SPRITE(#3,96,3,1,1,-10,0)
70 CALL SPRITE(#4,96,4,1,1,20,0)
80 CALL SPRITE(#5,96,5,1,1,2,2)
90 CALL SPRITE(#6,96,6,1,1,20,-20)
100 CALL SPRITE(#7,96,7,1,1,-30,30)
110 CALL SPRITE(#8,96,8,1,1,-40,-40)
120 CALL SPRITE(#9,96,9,1,1,5,10)
130 CALL SPRITE(#10,96,10,1,1,30,15)
140 CALL SPRITE(#11,96,11,1,1,4,-2)
150 CALL SPRITE(#12,96,12,1,1,-10,20)
160 CALL SPRITE(#13,96,13,1,1,-6,3)
170 CALL SPRITE(#14,96,14,1,1,5,-10)
180 CALL SPRITE(#15,96,15,1,1,-20,-40)
190 CALL SPRITE(#16,96,16,1,1,-80,-40)
195 CALL MAGNIFY(4)
200 CALL COINC(ALL,DO)
210 FOR X=1 TO 80::NEXT X
220 IF DO=-1 THEN CALL SCREEN(INT(RND*16+1))
230 GOTO 200
```