YESTERDAY'S NEWS

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30 Years Ago...

Historical Information taken from Bill Gaskills TIMELINE

MAY 1989:

McCann Software announces the creation of a FORTH programming language adaptation for the Myarc Geneve computer.

The Fourth European Tref computer fair is announced. It is to take place in the Netherlands on October 7th.

Paolo Bagnaresi announces that he has created a procedure to allow the Myarc 512K Memory Card to work with the Geneve 9640, but cautions that the procedure is irreversible, so it will not work with the 99/4A after the modifications.

Gary Bowser of Oasis Pensive Abacutors (OPA) announces that he is doing work on a Z80 card to run inside the 99/4A's Peripheral Expansion Box. The card supposedly will allow the running of Z80 assembly code plus ColecoVision games?

Joe Ross releases cSHELL99, an Icon based user interface for the TI-99/4A.

Al Beard, author of 99 FORTRAN and the more powerful 9640 Fortran, promises an upgrade of 99 FORTRAN to V4.0.

AV-Indexer by Don and Aaron West is released by Genial Computerware.

J. Peter Hoddie announces the creation of MY-Word Externals, a way to add new ommands and Keypresses to MY-WORD. Hoddie also intimates that a new Print Shop-like utility is in the works that will contain a powerful printer driver that will support third-party add-ins.

Word reaches the TI Community that Gene KrawczyK of the Adelaide TI Computer Clu b in South Australia has written a new language called "G". It is said to be similar to TI BASIC but without any line numbers.

INSIDE INFORMATION

REAL TIME CLOCK

By John F. Willforth

The following is not my original circuit design (I have changed some things however). The credit must go to Gary Emmich and Tony Albanese of the Northern New Jersey Users Group. The circuit below (see fig. 1) is essentially 1/2 of the REAL TIME CLOCK and DIGITAL CONVERTER circuit they designed and distributed as PUBLIC DOMAIN. The circuit was later etched to a double-sided board, and a Kit was distributed which became Known as the MBP CARD. Last month I got a reprinted article from the TISHUG, written by John Paine which described the circuit he put inside his speech synthesizer to give the system a REAL TIME CLOCK. The circuit is the clocK section of the one originally designed by Gary EmmicK, and as such, because the schematic was reduced and not too easily read, and since it is public domain, I thought I would rewrite the article and redraw the schematic. (Schematic for this article was reproduced from John's with TI-ARTIST by Al Hattem. See fig. 2)

First the pin numbers to the left of ")--" are the pin numbers on the connector inside the speech synthesizer, those two marKed "23" & "24" go to these two pins on the clocK chip, and those to the right of the "--X" are the data bus also attached to the same connector inside the speech unit.

The circuit consists of two 1-of-8 decoder/demultiplexer (74LS138s), which decode the address lines to select the clocK chip at -31168 to -31154 which select the clock functions, the MM58167 clocK chip, the osc. circuit, Q1 to invert DBIN, and the battery back-up circuit. The entire

See "CLOCK", page 2

ELEMENTS OF BASIC

By Dave Howell

Courtesy of the Erie 99'ers

Part 19

FUNCTIONS - continued

DEF Function. About the only function left to discuss is the DEFine function. It is used to define a function, or a series of commands, that will be used over and over again in a program. Its general form is DEF A(X) or DEF A$(X).

The DEF function can be used to manipulate string or numeric values. The type values that are returned by the function depend on the nature of the function defined. However, the variable name that follows the DEF Keywoard must be the same type as the value returned by the function.

Here is a segment of a program that could be used to checK homeworK. The tasK is to find out what the algebraic equation $X^2 + X^2 + X/2$ will equal for variousvalues of X.

```
            ^       ^
10 DEF F(X) =X 3 + 2 * X 2 + X/2
20 PRINT "ENTER VALUE FOR X";
30 INPUT V
40 PRINT "ANSWER = ";F(V)
50 GOTO 20
```

Notice that the DEF function must precede its use in the program. In this program, the name of the function is F. In line 10, the X in the parentheses immediately after F is a variable name used inside the function. That is, when the computer carries out this function, it will use whatever value it finds inside the parentheses as the value of the variable X. when the function was carried out in line 30, the value inside the parentheses was the value of the variable V, which got its value from the INPUT statement in line 30.

The variable X in this program is used only within the function. It has no effect on any other variable X elsewhere in the program!

Now RUN the above program entering the numbers 3, 4, 7 or any other number.

As mentioned before, the DEF function can return a string value as well as a numeric value. The argument inside the parenteses can be a string. The following program is used to define a function that concatenates (linKs together) the argument of the function with the string "BERRIES".

```
10 DEF Z$(X$)=X$&"BERRIES"
20 A$="BLUE"
30 B$="STRAW"
40 PRINT Z$(A$),Z$(B$)
```

In line 40, Z$ will automatically substitute A$ and B$ for the X$ in line 10 and combine the A$ which is BLUE and B$ which is STRAW with the string BERRIES. Therefore, this function produces the two string values - BLUEBERRIES and STRAWBERRIES.

The following program defines a function that concatenates (combines) 2 string characters represented by the ASCII codes 42 and B (which is 65). The character produced by CHR$(42) is the * and the CHR$(B) is A.

```
10 DEF A$(B)=CHR$(42)&CHR$(B)
20 PRINT A$(65)
```

After running this program, try using other ASCII code numbers from 33 to 126 in place of the 42 and 65.

As one becomes intimate with the DEF function, it should be easy to see that this function can save space by eliminating the need to repeat an expression especially when the expression is long or complicated. For example, rounding off valus to two decimal places for "dollar and cents" expressions complete with the dollar sign and decimal point can be made simple with the following 2-line program:

```
10 DEF ROUND(X)=INT(X*100)/100
20 DEF DOL$(Z)="$"STR$(ROUND)Z))
```

The ROUND function multiplies the number X by 100, maKes it into an integer (removes the decimal places), and divides the result by 100 to get two decimal places. Then the DOL$ function puts the dollar sign ($) in front of the string representation of the rounded number.

Add these lines to the above program to see how it worKs when decimal values are used.

```
30 A=654.32632
40 B=987567.89235
50 C=4.5555
60 PRINT DOL$(A);TAB(10);DOL$(C);TAB(20);DOL$(B)
```

The output should produce this line with the dollar signs automatically included.

```
$654.33    $4.56
&987567.89
```

CLOCK continues...

circuit may be put on a small RADIO SHACK perf. board and installed inside the Speech Synthesizer.

John Johnson's MENU program accesses the clock automatically, I've included original CLOCKSET and TIME programs with this article.

Here are the addresses to peek and load (poke) and an xbasic command to reset the sound (the sound chip is at this address).

-31168 - Thousands of seconds
-31166 - Tens & Hundreds
-31164 - Seconds
-31162 - Minutes
-31160 - Hours
-31158 - Day of week
-31156 - Date
-31154 - Month

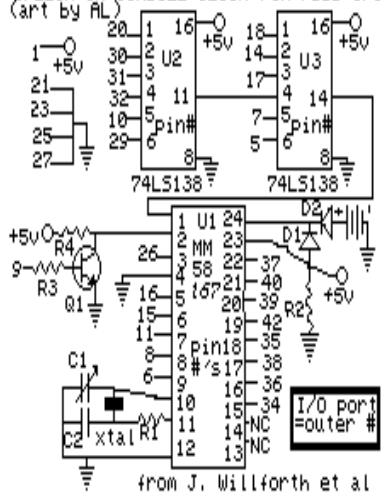
* To reset sound.."CALL SOUND(1,20000,20)"

* The data required by the above address is in "BCD" and will need to be converted.

PARTS LIST

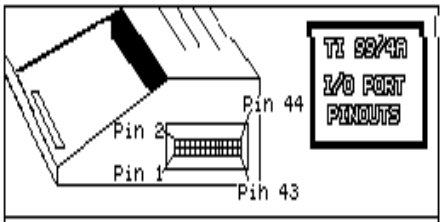
1 MM58167 clock chip (appx. $10)------U1
1 32.768 KHz crystal---------------XTAL
2 74LS138-------------------------U2 U3
1 2N2222 Transistor----------------Q1
1 30 pfd trimmer (variable capacitor)-C1
1 22 pfd capacitor-----------------C2
1 220K resistor--------------------R1
1 1K resistor---------------------R2
2 2K resistor---------------------R3 R4
2 1N914/1N4148--------------------D1 D2
1 3 Volt Lithium battery-----------BATT
1 Perf. Board to mount components
Misc solder, wire, tools.

figure 1 SPEECH OR CONSOLE CLOCK FOR PBBS 8/88 (art by AL)



from J. Willforth et al

Figure 2



1 +5v	12 Ready	23 GND	34 D7
2 SBE	13 -Load	24 CLK-03	35 D4
3 -Reset	14 A8	25 GND	36 D6
4 -EXT INT	15 A13	26 -WE	37 D0
5 A5	16 A14	27 GND	38 D5
6 A10	17 A7	28 -MBE	39 D2
7 A4	18 A9	29 A6	40 D1
8 A11	19 A15/CRU	30 A1	41 IAQ
9 DBIN	20 A2 out	31 A0	42 D3
10 A3	21 GND	32-MEME N	43 -5v
11 A12	22-CRU CLK	33 CRU IN	44 Audioin

A=Address bits, D=Data bits
- means signal active low art by al

By Judy Sanoian

99'er July 1983 Vol 2, No 9

Dark, dead-end streets, tall skyscrapers, cops on the prowl - a stark view of the naked city confronts us in Mean Streets, a SWAT team shoot'em up from Alpha Software. The full moon in the corner of the screen hints that the loonies will be out tonight and indeed they are - not the street punks and underworld characters of Scorsese's Mean Streets, but a quasi-political band of terrorists who are out to sack the Last National Bank.

Here's the scam: The Seylenese Liberation Attack Group (SLAG) have robbed the bank and are attempting to escape when your SWAT team is called in. All three escape routes are sealed off, so you (the cop) must face them in a Kill-or-be-Killed shootout. For tactical reasons, the SWAT members are deployed singly to fight the urban blighters. When the robbers are hit, they are reduced to horizontal lines (never has the term "rubbed out" seemed so apt), and the cops get 100 points. But don't think you can relax once you transform your enemy into a SLAG heap; these guys are fanatical cop haters and may keep shooting until they die.

Graphic excellence
The striking graphics in Mean Streets offer a refreshing dose of realism. Fantasy-scapes seem to predominate in today's game market, so it's nice to see a real earth scene for a change. The dark night, full moon and tall, forbidding buildings evoke a mood of danger, crime, and evil forces lurking in dark alleys. There is also a very effective use of perspective to give the buildings a three-dimensional feel, instead ofthe flat look that characterizes so many computer game scenes.

Unfortunately, the animation in Mean Streets does not measure up to the excellent graphics. The cops cannot move up or down, so they end up sliding back and forth on the main drag like trains on a track. The gun-fighting tactics are also lacking in realism. It is not possible to fire diagonally, or from behind buildings, so the cops and criminals must face each other in High Noon-style duels. An option to let you ricochet bullets off buildings (which we have seen in other games) or fire from an angle would make the game both more enjoyable and more realistic.

Response
The game's response to your (joystick or Keyboard) control makes this an extremely challenging and at times, frustrating, game. Your cop tends to move as if he is sprinting in argyle socks on a freshly waxed floor. You must learn to compensate for this "slide factor" if you want him to stop on the dime (an important consideration in aiming at the enemy). When you hit the SLAG members, there is a short delay before they die, and they some times fire at you during that time. It can be frustrating to hit your target and then see your cop crumple. The directions do warn you that a wounded SLAG'er can fire back, but there is no way to tell whether they are wounded or dead.

Imprecise movement and slow guns may try your patience, but for me, the most frustrating threat in Mean Streets is the grenade. The directions say that you will be warned before the fiends drop a grenade from one of the buildings. When the warning flashes, however, the cops seem to freeze in fear. No matter how feverishly I pushed the joystick or jammed the keys, the men in blue would not budge.

Realistic violence?
Those who are concerned about violence in computer games may immediately recoil at the theme of Mean Streets. But while the game's graphics are strong on realism, its scenario is well within the realm of fantasy. I personally tended to view it much the way I would a thirties gangster movie - as a stylized exaggeration that has little to do with reality. From the game's gangbusters beginning (a squealing siren set against an animated collage of handcuffs, police badges, handguns, and money bags) it is difficult to take it very seriously. Just as you tend to forget about police brutality when the movie cops are about to nail Scarface or Dillinger, it is probably best, with Mean Streets, to suspend your moral judgments and regard this as a Hollywood-style parable of good vs. evil. That way you won't be outraged that theambulance pulls up when a cop is shot, while the terrorist is left to die on the street like a dog. Keep in mind that the odds are against the men in blue. As in any big city, there is a small number of cops (10) and an infinite number of criminals. And this gang makes the Red Brigade look like a bunch of cub scouts. So even though your cops get preferred treatment, there is no way you can really win. As in real life, the most you can hope for is a high score before you punch out.

Mean Streets offers a colorful and original theme (big city crime) and superior graphics. The instructions for loading and playing the game are clear and comprehensive. (They don't tell you, however, to disconnect your disk drive system if you don't have the 32K memory expansion - otherwise you get a MEMORY FULL message. This means that you must have the 32K memory expansion if you buy the version on disk.) The game itself is just another shooting gallery scenario, with a few twists. But it is a challenge, and with a few changes (better mobility for the cops and ricocheting bullets) it could be a real strategy game with ambushes and fancy shooting: As it is, however, the best you can hope for is to prolong the lives of your doomed SWAT team as long as you can before the tanks roll in with the devastating message: YOU HAVE FAILED. NATIONAL GUARD CALLED IN.

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PERCOM DATA CORPORATION TX-99

By Terry Helm - Enthusiast'99 - Sep. 1983 - Vol. 1, No. 3

One of the most common questions I hear every day answering the phone at the Users-Group is, How can I add a disk system to my computer without buying the Peripheral Expansion Box and the Disk Controller Card? Now, for the first time, there is a way.

Percom Data Corporation has introduced a disk system that plugs directly into the console and eliminates the need for an expansion box or disk controller.

The Percom Data TX-99/S1 is a single sided, single density disk drive measuring 7.2 x 4.8 x 11.7 in. and allowing 90K of storage per diskette. Also available from Percom is the TX-99/A1 drive to be used as an add on drive to the 99/S1 and the TX-99/S2 system which consists of two half-sized drives. The TX-99 disk drives can be used in exactly the same way as the TI disk system for loading and saving programs, data file processing within programs and all of the utilities one would expect in a disk drive (i.e. merging programs). The TX-99 even comes with a TI disk Manager 2 so that you can use the disk drive to its fullest capability.

For those of you who may be unfamiliar with disk drives, there are several important advantages of a disk system as compared to a cassette tape recorder. First of all, the disk drive is much faster. Data and programs can be loaded from disk at the rate of 125,000 bits per second as opposed to 300 bits per second from tape. If you spend a

lot of time saving and loading programs, a disK system should prove well worth the investment.

Another advantage of a disK system is the packAge of utilities that comes along with it. For example, all of us have had the frustrating experience of recording over the first few seconds of a program and losing the whole thing. With a disK, programs and data are stored by filename and the disK system maKes sure you don't clobber one file with another. Also, there are no tone or volume Knobs to worry about on the disK drive, so loading difficulties are eliminated.

There are, however, a couple of trade-offs one should be aware of when looKing into the TX-99. First of all, the Percom disK drive cannot be used in conjunction with the Peripheral Expansion Box, so if you are thinKing about adding memory expansion, a printer, and maybe Pascal, you should seriously consider staying with TI.

The second drawbacK is that only two Percom disK drives can be used, as opposed to three with the TI system (I have never met anyone who would consider this a major issue.).

The advantages of the TX-99 include simplicity, an easy to understand manual, and price. The TX-99 is easy to assemble just plug one end into the wall and the other end into the console and you are ready to go.

Once you learn the language of the disK system, you will see that the TX-99 is much easier to use than any tape recorder.

The manual is both informative and readable and assumes no previous experience with disK drives. The manual begins by answering the questions What did I buy?, and What do I do? and continues to explain all of the relevant BASIC commands and statements that deal with disK drive operation.

For more information about the Percom Data TX-99, contact the Users-Group or call Percom Data Corporation.

By Will Schick - 99'er - Sep. 1983 - Vol. 2, No. 11

Many of you who have purchased the basic TI-99/4A system (console, TV set and cassette player for program storage) may be wondering what the next logical step is in upgrading your system. Naturally, this depends on your own particular needs, but it is hard to imagine any peripheral adding more power to your system than a disK drive. Maybe it's because disKettes only cost about $3 each that we tend to taKe for granted the remarKable technological advance embodied in this 5 1/4" wonder. With one drive using single-sided, single-density disKs, over 90,000 bytes of information are almost instantly available. Millions of bytes stored off-line taKe up no more space than a shoe box, and can be accessed almost as fast as you can pop the disKettes in and out of the drive. After you get used to accessing and transferring data in seconds, you will probably be calling the slower, more clumsy cassette medium "stone age" technology.

It is understandable that someone who is on a tight budget, but eager to upgrade his system would not be eager to buy the TI Peripheral Expansion Box. After all, the PEB doesn't do anything by itself; its only purpose is to maKe expansion of the system possible. Although the PEB may be a good investment for some, you can still put together a pretty good system without it. You can get an RS232 interface for your printer and a 32K memory expansion unit, add a few additional command cartridges, and you'll have a versatile set of computing tools at your fingertips.

Although hooKing components together "freight-train" style can quicKly get out of hand, it can maKe economic sense as more complete peripheral packAges become available. The Percom Data TX-99 disK drive system is one such complete packAge. The system includes the disK drive itself, the disK controller (which is usually on an accessory card within the PEB), a DisK Manager 2 Command Cartridge, two pre-initialized disKs, a ribbon connecting cable, and two user manuals. Percom Data also offers a packAge that does not include the DisK Manager 2 cartridge. The drive and controller are housed in a very sturdy 7"x5"x12" cabinet of brushed aluminum weighing just over 8 1/2 lbs. More of the 5 1/4 single-sided, single-density disKettes are widely available.

The TX-99 manual explains how to attach the disK drive to your console and how to store and retrieve files using Basic commands. Because the disK controller is contained in the unit, set-up is very easy. With the ribbon cable included, simply connect the TX-99 to the expansion port located on the right side of the console and it is ready to accept a disKette. It can also be plugged into the expansion port of a peripheral already plugged in. In any case, the TX-99 has to be the last in line in the freight train, because nothing can plug into its connector. (If you wish, you can easily add another drive later on.) A lever holds the floppy in place while in use, and ejects it when turned to the vertical position.

Although the TX-99 comes with pre-initialized disKs, and you can order more from Percom, you can also initialize your own disKs if you have the DisK Manager 2 ommand Cartridge. DisKs must be initialized before use; initialization divides the disK's storage area into sectors, and marKs the boundaries between sectors. This permits the ontroller to find and access files in a matter of seconds. Finally, we should mention that the TX-99 is one of the quietest floppy disK drives we've ever used, and one of the most attractive.

YN

CHICAGO PROJECTS

by Bill GasKill

Recently I received the second of two projects completed by the industrious members of the Chicago TI-99er Users Group. The first was a copy of their HARDWARE REPRINTS manual that was released earlier this year, compiled and edited by NicK Iacovelli. The second packAge, which will be available November 1st, and will be for sale at the Chicago Faire on November 4th, is entitled TI-WRITER SUPPLEMENT. Ernie Pergrem gets the credit for maKing it and the optional companion disK for it happen.

The HARDWARE REPRINTS is a 148 page manual that is made up of photo copies of articles on hardware projects that were originally printed in other Users Group newsletters. It may be purchased for $10, which includes the cost of first class postage. The TI-WRITER SUPPLEMENT consists of 54 pages of photo copied articles from both Chicago's own newsletters and other Users Group sources. It covers tips, tricKs and other information about the most popular word processor ever written for the 99/4A. TI-WRITER SUPPLEMENT costs $5.00 if purchased alone or $7.00 with the companion disK. The disK may also be purchased alone for $5.00. An additional $2.00 to cover postage is required for the TI-WRITER SUPPLEMENT if it is ordered by mail. No additional postage is required if you order just the disK.

HARDWARE REPRINTS:

Although I am not much of a hardware hacKer I found the the HARDWARE REPRINTS to be a readable and informative collection of information. It certainly covers a wide variety of modifications and creations for the Knowledgeable user, or the novice user who needs help in tacKling an anticipated hardware modification. The projects list, shown in Figure 1, is extensive.

As you can see, there are over 40 different projects and tutorials. Many of them are illustrated or contain diagrams that help the user understand what is going on. The author list for the articles is as impressive as the material itself. Material from such well Known hardware gurus as John Willforth, Joe Spiegal, John Clulow, Ed Hallett, Ron Gries and Travis Watford can be found in the manual.

One of the downsides to the HARDWARE REPRINTS is the sometimes confusing layout of the material. Because each article is a photo copy of an existing article from another newsletter, NicK Iacovelli was at the mercy of the material on hand when trying to put the booK together. In other words, he didn't have the benefit of manipulatable text files and camera-ready illustrations and diagrams to use when trying to maKe a readable manual out of a collage of different information. The end product is admirable when you realize what he had to start with. But don't expect the manual to looK liKe it just came out of the print shop, smelling of still drying inK. It doesn't. Some text is in multiple columns on the page in one article while the next article is presented in standard text. Some diagrams and illustrations are a little fuzzier than others. But all are readable in detail. The end product is still viable, useful to the hardware adventurer and a pretty good effort. For $10 you receive a copy of the the most extensive collection of information on hardware modifications for the 99/4A that exists anywhere.

TI-WRITER SUPPLEMENT:

TIW SUPPLEMENT is also subject to varied layouts, ranging from multiple column presentation of text to pages that were originally printed in compressed mode. Only somehow, it comes off better than the HARDWARE REPRINTS in appearance. I don't mean to offer a comparison between the two, because they share nothing in common material wise. It's just that they are both sitting here on my workstation at the same time and it's hard not to notice the difference.

When you open up the TIW SUPPLEMENT and read past the FORWARD, the first thing that you are greeted with is a neat Table of Contents. It tells you that the manual is organized into four chapters;

1. The Editor
2. The Formatter
3. Graphics (produced with your word processor)
4. Programs, Printers and Miscellany

The topics covered in the TIW SUPPLEMENT are listed in Figure 2.

There is actually even more information in the TI-WRITER SUPPLEMENT than the Table of Contents would indicate. Interspersed in various places you find little unlisted goodies liKe how to modify the formatter program to substitute other characters for the AT and the ampersand symbols. There is even a replica of the Keyboard overlay for TI-Writer. While there are a number of truly superb articles in this booK, my favorites have to be Anne Ohein's TI-Writer graphics articles. The manner in which she covers graphics through transliterates is the best that I have ever seen. Some of the other authors contributing to TI-WRITER SUPPLEMENT are; Tom Kennedy, Glen Davis, Jerry Kiesler, Jim Peterson, Ollie Hebert, James Stringfellow and more.

Overall, I found the TIW SUPPLEMENT to be GREAT!

It is nicely organized, well edited in the consistency of content and flow of material and it looks neat. While it doesn't even come close to providing the volume of information that the HARDWARE REPRINTS manual does, it comes off as more of a cosmetic success. But I must admit that appearance is only a small part of what you pay your dollars for.

TIW SUPPLEMENT COMPANION:

Ernie Pergrem has gone to a lot of effort to provide the companion disk for the TIW SUPPLEMENT manual. It contains all of the programs that are shown as LISTings in the manual plus a few more thrown in for good measure. Many, if not all of the programs, were keyed in by Ernie in order to test them for proper operation. The end result is a disk consuming 311 sectors with 23 files on it. The utilities run the gamut from programs to convert file formats to sorting routines. All in all a neat collection of utilities.

CONCLUSION:

The Chicago TI Users Group is to be commended for coming up with the idea to produce these manuals and the companion disk in the first place and for actually making them happen in the second. All three are obviously the result of many hours of searching, reading, editing and program keying on the part of the project engineers who actually did the work. Having the ability to go to a single source to find the derth of information that exists here is an invaluable resource to anyone interested in either area. The TIW SUPPLEMENT will no doubt be the most popular of the two manuals, simply because virtually everyone does word processing with their computer. But the HARDWARE REPRINTS is arguably a more valuable resource since the information in it is much harder to find in one place. Either project is worth the small investment asked by the Chicago Users Group, and both efforts rate four stars on Harry B's scale of excellence.

FIGURE 1

Figure 1,1

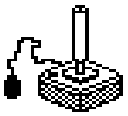
-32K ON THE 16-BIT BUSS
-AB SWITCH CONSTRUCTION FOR DUAL PRINTER USE
-ATARI TO TI JOYSTICK PINOUTS
-ATTACHING 10 FUNCTION KEYS TO THE 99/4A
-BUILDING A BURGLER ALARM
-BUILDING A HOMEMADE PRINTER STAND
-COLOR OR BLACK AND WHITE VIDEO OUTPUT SELECTOR
-COMPUTER CAREL (workstation) PLANS
-CONSOLE PORT PINOUTS
-COOLING FAN/SYSTEM MODIFICATIONS
-CLEANING YOUR 99/4A INSIDE-OUT
-CURES FOR COMPUTER LOCKUP
-CURING BACKGROUND NOISE
-DO IT YOURSELF CARTRIDGE EXPANDER
-DUAL CASSETTE CABLE CONSTRUCTION

FIGURE 1 CONTINUED

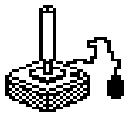
-ENHANCING YOUR COMPUTER'S AUDIO OUTPUT
-EXTERNAL KEYBOARDS
-FOUNDATION 128K CARD MODIFICATIONS
-GRAMKRACKER CIRCUIT DIAGRAM
-HOMEBREW KEYPAD
-HORIZON RAMDISK PROJECT (the original specs)
-HOW TO REPAIR AN ELECTRONIC INSTRUMENT
-INSTALLATION OF GROM CHIPS
-INSTALLING (an added) 8K ONTO YOUR 32K CARD
-INTERNAL (inside console) COMPONENTS LAYOUT
-LIGHT PEN CONSTRUCTION
-MAKING A DS DRIVE LOOK LIKE TWO SS DRIVES
-MODIFYING TOMY CONTROLLERS FOR 99/4A USE
-MULTIPLE DRIVE MODIFICATIONS
-PERIPHERAL CABLE (the fire hose) EXTENDER
-POWER SUPPLY MODIFICATIONS
-PRINT HEAD CLEANING
-RESET AND HOLD SWITCHES
-RGB-COMPOSITE VIDEO CONVERTER DIAGRAM
-SERIAL TO PARALLEL CONVERSION FOR PRINTERS
-SMOKE (the effects it can have on your system)
-SUPERCART CONSTRUCTION
-SUPER-SUPERCART CONSTRUCTION
-SURGE PROTECTION
-THE CARE AND FEEDING OF PC's
-TRIPLE TECH CARD MODIFICATION
-VIDEO CLARITY IMPROVEMENTS
-WIDGET MODULE BRACE
-WIRING A PRINTER

FIGURE 2

-A HANDY QUICK REFERENCE TRICK
-A PROGRAM TO HELP WHEN DOING FORM LETTERS
-DATE? WHAT DATE?
-DIS/VAR CONVERTER PROGRAM
-DOWNLOAD CHARACTERS TO YOUR GEMINI
-GRAPHS USING TI-WRITER
-HINTS, TIPS AND ANSWERS
-LETTERFORM
-MAKING ADDRESS LABELS WITH TI-WRITER
-MORE TI-WRITER TIPS
-PRINTER COMMANDS
-PRINTING MAILING LABELS WITH TI-WRITER
-PRODUCING ART WITH THE WORD PROCESSOR-1
-PRODUCING ART WITH THE WORD PROCESSOR-2
-TELECOMMUNICATIONS WITH TI-WRITER
-TI-WRITER COMMANDS
-TI-WRITER FONT MAKER
-TI-WRITER FORMATTER OVERVIEW
-TI-WRITER GRAPHICS
-TI-WRITER GRAPHICS WITH THE PROWRITER PRINTER
-TI-WRITER MNEMONIC (MEMORY) TRICKS
-TI-WRITER OVERLAY OVERVIEW
-TI-WRITER TEXT SORTER
-XB PROGRAM EDITING WITH TI-WRITER
-WORDCOUNT



INTERNATIONAL FUN & GAMES



GAME TITLE	SCORE	JOYSTICK JOCKEY	TI CLUB	DATE
BACKSTEINE	155900	STEVEN JAKABFY	OSHTI UG	09/95
BIGFOOT	290500	DAVID HANDLE	OZARK 99	01/95
BLASTO	44880	MIKE CENDROWSKI	W/PENN 99	11/94
BREAKTHROUGH	1850	RAY FRANTZ	VAST	11/93
BURGER BUILDR	1000000	ELEANOR ZIC	W/PENN 99	03/94
BURGERTIME	82600	MICKEY CENDROWSKI	W/PENN 99	09/85
CAR WARS	6050	JIM WAYNE	VAST	11/93
CENTIPEDE	301930	MICKEY CENDROWSKI	W/PENN 99	01/87
COLORS	1000000	HARRY HOFFMAN	CLEVELAND	03/95
COMBAT	750	AIRSHACK	VAST	02/19
DIG DUG	262460	FRANK ZIC	W/PENN 99	03/94
ENTRAPMENT	3668	FRANK ZIC	W/PENN 99	11/93
HOPPER	4031826	TOM BEERSMAN	OZARK 99	06/94
HUSTLE	WON 52	ELEANOR ZIC	W/PENN 99	03/94
JAWBREAKER	15025	JIM WAYNE	VAST	11/93
JUMPY	131900	ELEANOR ZIC	W/PENN 99	03/94
MICRO PINBALL	1776500	NORM ROKKE	W/PENN 99	05/87
MIONITE MASON	27100	FRANK ZIC	W/PENN 99	11/93
MOON PATROL	73150	MIKE SEALY	W/PENN 99	03/94
MUNCHMAN	202170	PAUL BROCK SR.	W/PENN 99	09/87
PACMAN	153000	GARY TAYLOR	W/PENN 99	09/87
PARSEC	47300	MICKEY CENDROWSKI	W/PENN 99	09/87
PKR SOLITAIRE	3790	JACKIE REMENSKI	VAST	11/93
POLE POSITION	57700	MICKEY CENDROWSKI	W/PENN 99	12/94
SUPER YAHTZEE	615	JACKIE REES	VAST	11/93
THE ATTACK	31800	JIM WAYNE	VAST	11/93
TI INVADERS	15930	PAUL BROCK SR.	W/PENN 99	09/87
TI TRIS	2208	FRANK ZIC	W/PENN 99	11/93
TOMBSTNE CITY	154400	DANNY MCGUIRE	OZARK 99	11/94
TRN SOLITAIRE	351	CAROL HOFFMAN	CLEVELAND	03/95
TREASURE ISLE	37800	MIKE CENDROWSKI	W/PENN 99	10/94
TRIS (ASGARD)	8393	MICKEY CENDROWSKI	W/PENN 99	12/94
YOUR GAME	0000000	YOUR NAME	GROUP?	00/00
YOUR GAME	0000000	YOUR HANDLE	STATE?	00/00
YOUR GAME	0000000	YOUR NAME	COUNTRY?	00/00
YOUR GAME	0000000	YOUR HANDLE	GROUP?	00/00
YOUR GAME	0000000	YOUR NAME	STATE?	00/00
YOUR GAME	0000000	YOUR HANDLE	COUNTRY?	00/00
YOUR GAME	0000000	YOUR NAME	GROUP?	00/00
YOUR GAME	0000000	YOUR HANDLE	STATE?	00/00
YOUR GAME	0000000	YOUR NAME	COUNTRY?	00/00
YOUR GAME	0000000	YOUR HANDLE	GROUP?	00/00
YOUR GAME	0000000	YOUR NAME	STATE?	00/00
YOUR GAME	0000000	YOUR HANDLE	COUNTRY?	00/00
YOUR GAME	0000000	YOUR NAME	GROUP?	00/00
YOUR GAME	0000000	YOUR HANDLE	STATE?	00/00

BOLD LINES INDICATE NEW HIGH SCORE OR GAME SUBMITTED

Please submit all scores to SPARKDRUMMER via private message on the ATARIAGE TI-99/4A forum.

THE WORLD RETURNS TO LOS ANGELES

99'FEST-WEST'87
MAY 16-17, 1987

Topics

LA 99er COMPUTER GROUP

Newsletter

VOL 6 NO. 5 MAY 1987

THERE IS SOMETHING FOR EVERYONE....MAY 16 & 17

PRESENTING

99'FEST-WEST'87

NOW PLAYING:

DIJIT SYSTEMS
GENIE
FAIRWARE
LA 99ER UG
BREA 99 UG
MG
TRITON
MYARC INC.
T. A. P. E.
RAVE 99

GENIAL COMPUTERWARE
BYTEMASTER
SMART PROGRAMMER
DATABIOTICS
DATA SYSTEMS
SF VALLEY 99 UG
OXNARD 99 UG
PESACA SOFT
TRI VALLEY 99 UG

Yesterday's News Information

Yesterday's News is a labor of love offered as a source of pleasure & information for users of the TI-99/4A and Myarc 9640 computers.

TI-99/4A HARDWARE

TI99/4A COMPUTER
MODIFIED PEB
WHT SCSI AND SCSI2SD
MYARC DSQD FDC
MYARC 512K MEMORY
HORIZON 1.5 MEG HRD
TI RS232
CORCOMP TRIPLE TECH
1 360K 5.25 DRIVE
1 360K 3.50 DRIVE
1 720K 5.25 DRIVE
1 720K 3.50 DRIVE

TI-99/4A SOFTWARE

PAGEPRO 99
PAGEPRO COMPOSER
PAGEPRO FX
PAGEPRO HEADLINER
PAGEPRO GOFER
PAGEPRO FLIPPER
PAGEPRO ROTATION
PIXPRO
PICASSO PUBLISHER
BIG TYPE
TI ARTIST PLUS
GIF MANIA

PC HARDWARE

COMPAQ ARMADA 7800
COMPAQ ARMADASTATION
SAMSUNG SYNCMASTER

PC SOFTWARE

DEAD WINDOWS 98SE
FILECAP
PRN2PBNS
IRFANVIEW
ADOBE DISTILLER
ADOBE ACROBAT

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