

(1986) RYTE DATA 8701

\$2.00

VOLUME 2 · 1987

VER 19  
JANUARY

# R/D COMPUTING

Dedicated to TI 99/4A and 9900 Computer Systems

Ryte  
Data.....

210 MOUNTAIN STREET,  
HALIBURTON, ONTARIO K0M 1S0  
(705) 457-2774

Have the Januaries? Rumour has it that Myarc is now supposed to be actually shipping the 9640. The name is 'officially' the "Myarc 9640".

Tenex is slated to receive the first 500 units off the line. If that doesn't do it for you, go south to escape the winter snows....!

A DESCRIPTION AND COMMENTARY ON THE GENEVE COMPUTER. Some implications for us all. by Chris Bobbitt (c) 1986

At its introduction, the Myarc Geneve computer will be among the most advanced computers available, and definitely the most advanced "home computer" in history. It is more powerful than many minicomputers, but is available at a price that would have been unheard of 3 years ago.

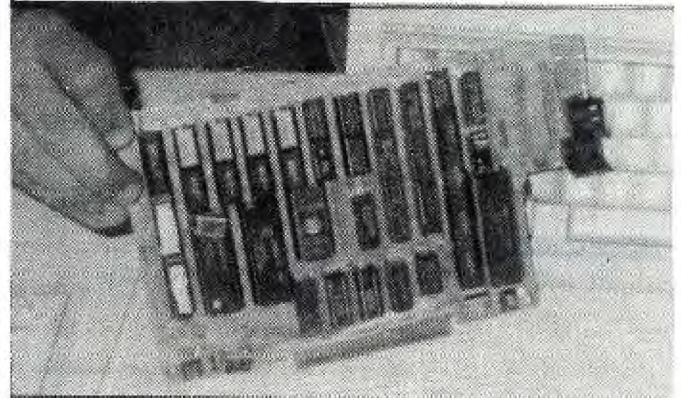
The following is a description of some of the capabilities of this remarkable device.

**MICROPROCESSOR:** The TMS 9995 is 5 to 6 times faster than a TMS 9900, the processor found in the TI99/4A. This processor is only slightly slower than the 68000 CPU, yet is much simpler to use, more accurate mathematically, and contains a smaller instruction set. The advantages of this smaller instruction set is an article in itself. Suffice it to say that this technique, called RISC, is getting a lot of attention in programming circles.

**MEMORY:** The standard Geneve Computer comes with 640k of RAM. This is expandable to 2 Megabytes using special memory expansion devices. A Myarc 512k card can be made to work with the Geneve with simple modifications. The Myarc 512k card memory may be directly accessed by programs.

**GRAPHICS:** The Geneve uses the Yamaha 9938 graphics processor. The 9938 processor was designed by Texas Instruments and Microsoft Incorporated. The computer world will discover this chip and its capabilities much in the same way that they proudly announced 16 bit computing for microcomputers; years after TI had introduced the TI99/4A. This graphics processor supports a variety of different modes for graphics and text.

**TEXT:** The Geneve supports both 40 and 80 column modes. The 40 column mode is similar to that of the 99/4A, so none of your current word processing software is obsolete. However, text, foreground and background colors may be any of 512 colors. 256 patterns are available for redefinition. One of the 80 column modes is the same,



while another supports blinking text and multi-color text. Some limitations apply, but this permits programmers of the system to use many of the advanced human factors graphics techniques just now being developed. The use of color to impart information, much in the nature of peripheral vision, can make word processing tasks, as well as the initial learning process, easier. Your Geneve computer will be able to keep up with this emerging technology for some time. Indeed the rich

## Introducing the greatest thing for 99/4A computer graphics since, well, the introduction of the 99/4A!

**F**or years TI-99/4A owners have looked longingly at programs such as Printshop (R) and Newsroom (R) for Apple, Atari and Commodore computers. We all have wished we could do the things that Fontrix (R) does on the IBM PC. Well, now there is a program for the TI-99/4A that does these things, and because of the special features of the 99/4A, does a whole lot more.

**F**ont Writer, by J. Peter Hoddie (a master programmer — author of Pre-Scan It! and system software for the Myarc Geneve computer) makes text and graphics come truly together for the first time on the 99/4A. Font Writer will combine any TI-Writer text files, TI-Artist or CSGD fonts, and TI-Artist instances the way you want them to make an otherwise drab report, letter or article come alive!

**F**ont Writer, like TI-Writer, is more than one program. The first program in the package is Font Editor — a program that will let you edit existing TI-Artist or CSGD fonts, or create new ones from scratch. Font Editor contains an innovative editing window, dozens of powerful menu-selectable utilities, and supports even more powerful user-defined macro drawing commands for drawing often used figures with a single command. As powerful as it is, like all Asgard products it's designed to be friendly and easy-to-use. It is so flexible that you can even edit TI-Artist instances.

**T**he real power of Font Writer, and it's most innovative part, is the Text Formatter. This program accepts standard TI-Writer files with virtually every imbedded text formatting command supported by TI-Writer, along with many new such commands for graphics support, to allow you to integrate text fully with graphics easily. Text Formatter accepts new commands for printing text in different fonts, including pictures and other graphics, and more. This easy-to-use program is as simple to use as TI-Writer, yet does so much more.

**T**he last, but not in any way least program in the Font Writer package is a powerful organization tool for graphics files. If you have ever tried ordering and maintaining TI-Artist fonts, slides, instances and pictures, you will later wonder why you ever tried without it.

**F**ont Writer requires Extended BASIC, 32K, and a disk drive system. TI-Writer and TI-Artist are highly recommended. Extensive documentation by Walter Howe is included. Available for a suggested price of \$24.95 from official Asgard Software dealers, from Teledata\*Guide on Compuserve (page TDG-4), by sending Source Mail to TI9720 on Source, or directly from Asgard. All major credit cards accepted.

# *Asgard Software*

P.O. Box 10306  
Rockville, MD 20850

resources of the TI programming community may well result in some breakthroughs in graphics presentation. It is reasonably well known that some organizations in the community are working very hard in this area. Since each of these various screens occupy very little memory of the 128k of standard video RAM found on the Geneve, up to 32 screens of text can be stored in memory at once. All of this information is directly addressable by the programmer. This bodes well to provide a rich environment for the system and applications programmer and thus, the user.

The Geneve supports every text mode of the 99/4A, as well as many new modes that use much of the available memory. One of the more interesting modes supports a resolution of 256 by 216 pixels. Each pixel can be any of 256 colors. This mode also supports multi-color sprites. Each pixel row of the sprite can be any of two colors. Another interesting graphics mode supports 512 by 424 pixels with each pixel any of 16 colors. The on-screen display of a maximum of 16 different colors can be selected from a pallet of 512 colors. This mode is the same resolution as the Apple Macintosh Computer, yet the system still finds the capability to support sprites, which the Macintosh does not. The 9938 chip has built in commands for line drawing, block moves and copies at hardware speeds. Programmers will have a rich, challenging environment for creativity, all at an affordable price for the 99/4A owner and convert alike.

**INTERFACES:** The Geneve has a number of ports. For video, this a port for an analog RGB monitor. The analog RGB monitor is more advanced than the digital ones used by the TI Professional Computer. Texas Instruments used the quality of the TI PRO monitor as a major component in its "Dare to Compare" campaign against the inferior IBM PC display system. An Amiga monitor displays

the power of the Geneve quite well and is readily available. However, an additional port permits the use of your existing TI 99/4A monitor. Therefore, your current equipment is not made obsolete by the new machine, allowing you the luxury of getting the best price for your existing monitor and cutting the best possible deal for your upgrade. Indeed, some are already at work seeking to separate early dropouts in the Amiga world from their monitors. The Geneve also supports the Amiga mouse. Other monitors of the analog RGB type work, however, do not pay extra simply because of the name on the front.

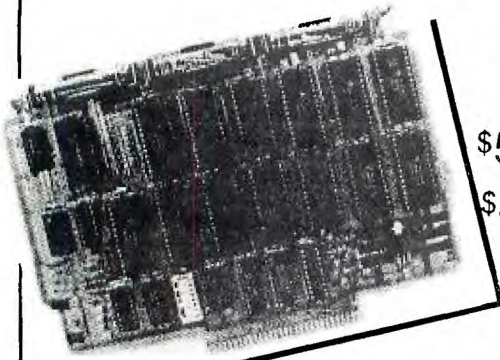
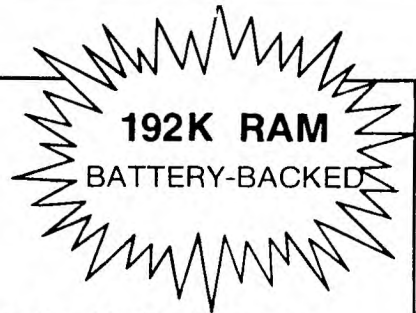
Your 99/4A console can be used as a standalone device with the purchase of the Geneve. The Geneve comes equipped with an IBM style keyboard. Other keyboards, costing from \$50 to \$500 will also work just fine. Since the Geneve replicates the functions of the console, you will only need the expansion system or one of the inexpensive expansion kits.

A multifunction port permits even more access to the Geneve. While labeled as being for the Amiga mouse mentioned earlier, this can also support sophisticated applications input from equipment both exotic and common. A video digitizer can input signals, for instance. Pictures taken from a video camera can be fed into the system. A digitizing tablet, which turns the Geneve into an elaborate data collection system or a component of a computer aided design (CAD) system is fully supportable, given proper software. Light pens are, of course, appropriate input devices as is information from a video cassette recorder or a video camera. Indeed, with external converter devices available on the market, you can pipe in television signals and enjoy crisp resolution and vibrant colors never seen before from a commercial television set, thus putting your RGB monitor on overtime.

**HARDWARE COMPARISONS:** To put this in perspective, compare the Geneve to

The

# HORIZON RAMDISK



\$53\* PC Board, Manuals & Software

\$45\* Five or more boards with one manual and set of disks.

\* PARTS AVAILABLE ELSEWHERE FOR ABOUT \$100/720 Sector

\*OHIO RESIDENTS ADD 5.5% SALES TAX

### CONSTRUCTED - 90 DAY WARRANTY

192K - 720 Sector .....	\$210
104K - 360 Sector .....	\$165

### NOT JUST ANOTHER RAMDISK...

THE ONLY BATTERY-BACKED RAMDISK for the TI-99/4A. The on-card batteries recharge when you operate your computer. The batteries will last for years and the entire 192K RAM memory is battery-backed including the DSR RAMDISK Operating System.

THE ONLY FULLY OPEN PE-BOX CARD. The Horizon RAMDISK contains no EPROM or ROM. The DSR Operating System is in RAM and is loaded from a floppy disk. DOCUMENTED SOURCE CODE is provided for those who wish to understand AND MODIFY the Operating System.

THE ONLY PERIPHERAL WITH DSR RAM which allows the assembler language programmer to write Device Service Routines. The Horizon RAMDISK memory is decoded entirely within address space >4000 to >5FFF. A special loader (provided with SOURCE CODE) enables AORG Editor/Assembler object files to be placed in the RAM on the card. You can write all new CALL subprograms for TI BASIC, power-up and interrupt service, and DSR routines making use of the 192K battery-backed RAM. >4000 to >57FF is always enabled, and the remaining 186K is paged in 2K at a time in >5800 to >5FFF with the LDCR instruction.

THE ONLY RAM CARD YOU CAN BUILD your self at substantial savings over fully constructed models. You can buy the printed circuit board, user's manual, Operating System software, and an ILLUSTRATED step-by-step construction manual with schematic and parts list and get the parts wherever you can find the best deals. Hundreds of TI Enthusiasts have built the Horizon RAMDISK. If you've had any experience building electronic kits you can too — at SIGNIFICANT SAVINGS! (If you want a fully constructed, tested and warranted unit, we sell those too.)

### EASY TO USE...

- > Functions just like a TI floppy drive, only FASTER! Load the operating system with a single key press, then access the RAMDISK as you would a floppy disk.
- > Compatible with software using standard DSRLNK including sector copy, Disk Manager II, MG Explorer, TI Writer, TI Multiplan, and Editor Assembler. Compatible with TI BASIC, TI Extended BASIC, TI and Wycove FORTH, TI LOGO, and Assembly Language.
- > Comes with the DM-1000 Disk Manager. Loads from BASIC of Ext BASIC in 1 second with CALL DM.
- > Compatible with existing hardware including MAXIMEM, GramCracker, and the RAM/GRAM Card.
- > Accepts drive names from DSK1 to DSK6.
- > DIP switch sets CRU Base from >1000 to >1700.
- > Adds CALL Subprograms to BASIC to: 1) set the drive number, 2) set write protect, 3) set maximum sectors, 4) enable DSR for direct access, 5) execute M/L code from BASIC. DELETE "XBCALL" downloads CALLs to low 8K for execution from running Ext BASIC programs.
- > Comes with complete DSR SOURCE CODE. Explains how to write A/L CALL routines to enhance TI BASIC.

## HORIZON COMPUTER LIMITED

P.O. Box 554

Walbridge, Ohio 43465

other computers. The Geneve comes with 640k of RAM, equivalent to a fully configured IBM PC XT. This memory is expandable to 2 megabytes, twice the standard memory of an Atari 1040 ST. The Atari ST, of course, is one of the more popular "non IBM machines" on the market. The Atari ST is the fastest microcomputer available in its price range. The Geneve is roughly equivalent. The makers of the Geneve have gone to the extra expense of installing special purpose chips to handle, among other things, input from disks, lightpens, and other devices. In a similar vein, these special purpose chips handle output to screen, disk and elsewhere. And what about graphics? Again expensive special purpose redundancy pays off. Therefore, in graphics, input and output, the Geneve runs circles around the Atari ST. The Geneve displays eight times as many colors as the Commodore Amiga. The Amiga is the superior machine with their special graphics display handling circuits in these respects. The Geneve, unlike the Amiga and the IBM PC AT, supports graphics with a 'true aspect' ratio. This is the superior form, and gives higher resolution through the use of square pixels, the tiny dots used to give your computer screen, even your television its color and appearance of depth.

The Geneve rates highly as a smoothly upgradeable machine. It obviously will be compatible with the newly developed Myarc disk controller card. In disk drives supported, the Geneve with the Myarc disk controller card will defeat the IBM PC AT. Four 20 megabyte hard disks can be supported with this upgraded configuration, not to mention that the same scheme will control four (or less) double sided QUAD density floppy drives of the conventional 5 1/4 inch size. The drives that use the new plastic bound three inch disks are supported as well. Knowing the market, the Geneve makers realised they needed a system that would become obsolete gracefully, as has the 99/4A.

Features of the 99/4A which still challenge the marketplace are retained. An example is the 99/4A's well known device independent operating system. Virtually any peripheral can be attached, unlike almost all other computers, including those costing thousands. Device independence is a feature you (the 99/4A owner) have purchased years ago and is one that should not be discarded in the name of progress. Therefore, the Geneve is superior to most every other microcomputer in graphics, speed, memory capacity and in versatility.

A full blown Geneve system would contain a Geneve computer, a WDS model hard and floppy disk controller, a TI RS-232 card, plus a 3 slot expansion kit, linked to two full blown 720 kilobyte floppy disk drives and a high resolution serial RGB monitor. If bought all at the same time, using all new components, your system would cost less than \$1,000. One of the finest features of such a system is that it can and probably should be acquired incrementally, particularly if you currently own an expanded 99/4A system. For a machine of this class, this is an incredible price. The Atari 1040 ST is well known as the first computer that costs less than one dollar for each one thousand bytes of memory, new. The Geneve may be the first machine to drive that cost down to fifty cents per thousand.

**SOFTWARE:** The Geneve will come bundled with a new version of Extended BASIC on disk which is fully 6 times faster than TI Extended BASIC. Also included will be a MS-DOS like operating system. The package is called "DOS like" because the commands used will be very close to MS-DOS. However, the internal workings of the system will not resemble nor be compatible with MS-DOS. This will be a boon for those who have had to struggle through learning MS-DOS at work or on another machine. In the package also

will be an 80 column version of TI Writer with a larger memory and other features.

A number of other products specifically designed for the Geneve will be available at or near the release of the Geneve. A number of 'C' compilers will be available by all expectations. C is a very popular language on 32 bit machines and is now beginning to appear in microcomputers in the last few years. Some business software will be readily available. UCSD Pascal, actually a language within its own operating system, will also be standard. Software developed on many machines, including the IBM PC, Apple, and others which use this system will run without modification on the Geneve.

The new Geneve software will allow users to set up directories as an aid to manage multiple files. A software RAMDISK will also be available, where the user can deal with a notional or in-software emulation of a disk. All interaction on this RAMdisk will be in memory, thus it will operate at extremely high speed. Print spoolers will be available. People still pay \$200 for print spoolers, which merely are hardware systems (now software) that fool both the computer and the printer. The printer is wired to signal the computer to stop sending data while the printer repositions the print head, or rolls up the platen. Meanwhile the computer is burning up thousands of cycles waiting for the printer to get ready to receive data again. A spooler is nothing but an ever ready printer to the computer and a patient computer to the printer. The job is transmitted to the spooler in a second or two and you are ready to go again while the printer goes ahead to finish the job.

**TI BUSINESS MACHINES:** The Geneve is assembly language compatible to the TI mini computer world, and awaits a member of that community to make that software run.

There is one silver lining in the "Perils of Pauline" development path of the Geneve, so fraught with delays. Time to think about the new arrival has been purchased with the sweat of the developer - in a process which would normally have been extremely secret and quickly sprung on the unsuspecting community with little or no warning.

**NEW OFFERINGS:** One new company has been started specifically to develop Geneve software. A true multi-tasking operating system is among the goals of this firm. Multi-tasking to a user means that several programs can be run at the same time. Multi-tasking is at the heart of such programs as Sidekick for the IBM where various panels, or windows are pulled down to allow notes and other activities to take place. Yet another goal for this new developer is a macro-assembler. Macro assemblers are small utility programs that can be strung together to achieve a variety of goals. In the mini computer world, programmers adroit in the macros of their particular machine rarely had to write much original code to achieve powerful results. This capability will soon arrive for you with the Geneve.

Soon after shipments of the Geneve begin, BASIC and Pascal compilers will be made available by this start-up firm. A compiler may not be a familiar concept to all who read this, though it is simple to pick up. When your 99/4A receives the RUN command, it wakes up and "interprets" the program you have told it to run; every single time. You are probably aware that assembly language is faster. The reason for this is that it is closer to machine language and therefore requires minimal "interpretation". BASIC, however, is not that close to machine language. Easier to remember and use, but requiring some form of intervention. The interpreter is often used for BASIC. While it gives constant feedback, an interpreter is

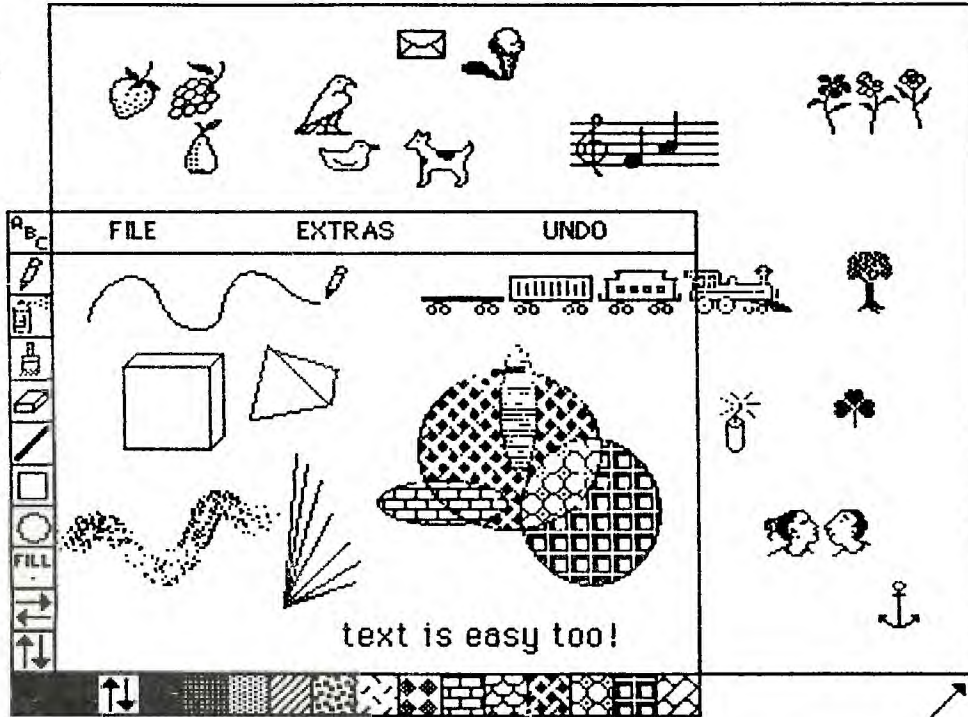
NEW! FROM THE CREATORS OF BANNER '99 AND EXTENDED BUSINESS GRAPHS.....


# JOY PAINT '99

(C) Copyright 1986

ENTIRELY  
JOYSTICK  
CONTROLLED!!

USE TOOLS,  
SUCH AS  
PENCIL,  
ERASER,  
PAINT BRUSH  
CIRCLE, OVAL  
BOX, LINE &  
TEXT!



 **92% MORE  
GRAPHICS  
SPACE THAN  
PREVIOUS  
TI GRAPHICS  
PROGRAMS!!**

**THE SCREEN  
ACTS LIKE  
A WINDOW!**

**REQUIRE:**  
TI-99/4A, 32K,  
Disk drive,  
Joy Stick, and  
one of the  
following:  
Extended Basic,  
Editor / Assm,  
or Mini-Memory.

Epson compatible  
printer such as  
Gemini 10x or  
15x, TI impact,  
etc. is optional.

(soon other  
printers too!)

Our all new 100% assembly language program features graphic capabilities found in no other software application. Use JOY PAINT '99 to create signs, charts, diagrams, advertisements, or graphics of any type. JOY PAINT '99 is sophisticated, yet simple to use. In fact, the user never needs to touch the keyboard; all functions are joystick controlled. There are no complicated function keys to remember, just simple on-screen TOOLS. JOY PAINT '99 allows circles and ovals to be drawn with incredible speed and precision. Lines, boxes and rectangles can also be quickly drawn! Additionally, the FILL, PAINT BRUSH, and SPRAY-CAN tools allow filling and painting in any one of twenty six selectable PATTERNS! JOY PAINT '99 also feature 8 different brush shapes!

A 'pull down window' contains many more features that make creating and manipulating graphics fun and easy. Any object can be INVERTED, ROTATED, FLIPPED VERTICALLY or HORIZONTALLY, COPIED, MOVED, OR STORED ON A CLIPBOARD! A MAGNIFY feature allows graphics to be increased. A ZOOM OPTION, called FATPIXELS, allows fine single dot editing.

JOY PAINT '99 also contains dozens of features not found in any other graphics application. For instance an 'UNDO' feature that instantly 'takes back' the last portion of work the user performed! Its DIRECTORY feature can catalog your diskettes! JOY PAINT '99 CONSERVES DISK SPACE, by not saving the redundant blank areas in your graphics! Printouts can be made directly in normal, or double size, and in single or double density! Be among the first to experience this unique and practical program; ORDER YOURS TODAY.....\$49.95 POSTPAID.

**COMING SOON:**  
JOY PAINT '99  
COMPANION!

With hundreds  
of pre-designed  
graphics!

**GREAT LAKES SOFTWARE**  
804 E. Grand River Ave., Howell, MI 48843

slower than a compiled program which is a machine or assembly program. You write the program as usual, then run the program through a compiler. That program compiles a collection of assembly language or machine code commands. That "compilation" is what you then use when you need that program. The compilation is much faster, almost indistinguishable from a program written in assembly language. The 99/4A only recently got an example of a compiled BASIC and a compiled C. If you have yet to experience the utility of compilers, you will certainly enjoy the Geneve. The increased memory will, of course, make these compilers superior in performance to anything currently in use on the 99/4A.

A HOST OF GENEVE SPECIFIC PROGRAMS are to come. Lou Phillips of Myarc has estimated that four to five years of effort will be needed to complete the full sweep of programs needed to truly tax the Geneve system and the chips associated with it. During that period, if a new design comes along, the card, not the entire structure can be modified. Almost immediately however, terminal emulators, word processing programs that support such sophisticated typesetting concepts as proportional spacing will begin to arrive.

Potential new products for the Geneve include databases, spreadsheets and paint programs.

The Geneve is one of the most remarkable computers ever introduced. A technical marvel, not a ripoff or anyone's clone. We are indeed fortunate that it has been designed to take advantage of the tremendous capability of the TI 99/4A... and its users. It should appeal to everyone, either as a first, a second or even third computer.

- by Chris Bobbitt (c)1986

FURTHER CONSIDERATIONS: Given the fact that the TI 99/4A is at a "dead end" in relation to long term

viability, the Myarc 9640 presents the only alternative to the investment in hardware, software and time on the 'learning curve' for 99ers. The 99/4A simply does not receive the same support as any other popular computer system that is, in those magic words, "in production".

Granted, the level of support that DOES exist is phenomenal. That does NOT mean that such support will continue, say, as long as the old Apple II!

Given the fact that the 9640 is the only "upgrade rumour" ever seen RUNNING (all snide remarks aside) by 99/4A owners, it deserves consumer support. Obviously, the best way to make this work is through supporting Myarc's efforts, buying a Geneve as your next machine, selling your used equipment to other TI owners and patronizing the companies which support both machines.

CRAIG MILLERS 'IBM' MACHINE: MG made an announcement on January 16th about their IBM upgrade. The original note stated, "We were contacted by a large US company to design a piece of interface hardware and software for the 99/4A to allow it to use both IBM hardware and IBM software. This unit could be thought of as an IBM expansion system since it will not only allow you to use IBM software but you can also add IBM cards to the system! That's right, now you will be able to run things like Lotus 123, dBase, Microsoft Flight Simulator, Quick BASIC and the BASIC compilers. That is about all we can say at this time. In January '87 this US company will make their announcement as to price and availability."

Apparently the large US company is Triton offering the IBM type machine. Well, from the reports we've received this new hybrid system is a box which runs an 8088 processor and connects to your 99/4A system. This system does not include an IBM keyboard, you still use the 4A as an input device.



Worse, this does NOT allow program, data or information transfer. It is basically an IBM clone with more limitations than a typical PC.

The critics note that for the price (\$500 - \$600) you might as well buy a PC clone with keyboard, drive and monitor to sit next to your 99/4A.

Without the capability to transfer data, programs or information between the processors, my opinion is that this unit has little value for the 99/4A community other than running PC software. In my book, the best way to have accomplished this task would be through a processor bus interface ie: a TMS9650 Multiprocessor Interface chip to connect directly from the TI bus to an IBM bus via a

short cable. With the cost of clone motherboards and a driver program at both ends the transfer of data from one system to the other would be more intelligent.

We shall certainly see what happens with this attempt at bringing IBM "compatability" to the TI community. At the projected price point, the extremely cost conscious TI 99/4A user certainly won't be compelled to jump. It will take far more to make most TI owners cross over to MS-DOS territory than a box to sit on your desk.

Be sure and let us know what you think about the details of this product!

# Artist Instances

**Now!** for users of *TI-Artist* and *Font-Writer*! The most extensive, complete library of instances ever produced, exclusively from **Asgard Software**. Each single disk volume in the *Artist Instances* series is a valuable collection of highly-detailed instance clipart for use in any graphics project. Each individual volume is fully documented with explanatory notes and usage tips for *Font-Writer* and *TI-Artist* users. Each collection contains only the best artwork individually culled from hundreds of files and arranged by subject matter. Finally, each volume is available for an incredible price of only \$9.00 each!

- Volume #1 - *Animals 1*: A complete collection of domestic, wild and fanciful animals.
- Volume #2 - *Animals 2*: More familiar and rare animals to decorate and enhance your creations.
- Volume #3 - *Holidays*: A volume dedicated exclusively to those very special days of the year.
- Volume #4 - *Home*: A vast library of works depicting implements of the home and home repair, and of personal items.
- Volume #5 - *People*: Famous and not-so-famous people individuals for populating your works.
- Volume #6 - *Computer*: Artwork about computers with pieces depicting office implements, transportation, and more.

Order all six volumes for only \$43.20 - a 20% discount! Please add \$.50/volume for shipping and handling. Mail orders to:

**Asgard Software, P.O. Box 10306, Rockville, MD 20850**  
(301) 345-2492 (Office hours 8:00AM-8:00PM EST)  
Mastercard and Visa Accepted



### C 99 RELEASE 3.0

Clint Pulley has done it again! We received the following announcement regarding the latest update for C 99.

I am pleased to announce the immediate availability of the third release of c99. Among the changes and new features are:

- c99 compiler V 2.1 with two dimensional arrays, the extern type specifier and an entry statement.
- the scanf family of formatted input functions.
- changes to printf et al to conform with standard 'C'.
- documentation for printf / scanf useages.
- elimination of minor bugs in the compiler and other files.
- a text file archiver (on the update disk only).

c99 release 3 is available in two forms. For those who have c99 Release 2, a single (SS/SD) update is available. For those who are still using the original release (versions 1.3 / 1.31 / 1.32) a complete new release of c99 is available on one (DS/SD - SS/DD) or two (SS/SD) disks. To obtain Release 3 of c99, send me one or two disks, a note indicating which form of the release you require and \$1.00 return postage. For the single disk form of the complete release, be sure and let me know which disk format you need. If you are in contact with other c99 users, I would appreciate "group orders" to reduce the amount of time spent copying disks. In this case, please let me know the names of all recipients so I can keep my database up to date.

If you have already sent me the suggested donation in support of c99, please note that further monetary contributions are NOT expected.

I feel quite strongly that your donation entitles you to the finished product. If you really want to send something more, I am always pleased to receive the software which many of you have included on your disks. If your disk has files on it, please mention this in your note.

In closing, I would once again like to thank all of you whose donations I was unable to acknowledge individually. Your generous support provided much of the incentive for me to keep working on c99. Judging from the response of the '4A community, my results have been worthwhile.

Best wishes for 1987.

Clint Pulley  
38 Townsend Ave.  
Burlington, Ontario  
L7T 1Y6

### NOT POLYOPTICS - PRESS RELEASE

Not-Polyoptics announces new flight simulator. This new program is all machine language named "SPAD FLIGHT SIMULATOR". Staged in World War I France, this program goes beyond limited simulators to include full screen 3-D perspective line graphics, a 360 degree panorama of the area while in flight, complete acrobatic control of the plane, mathematical algorithms of the physics of flight and a battle mode for the expert pilot.

Some of features include:

6 views \_ front, back, two sides, up and down.

Instrument panel including moving flight joystick.

Eiffel Tower in France.

Color graphics and continuous, infinite ground map.

'SPAD' will require a disk drive, Editor/Assembler cartridge and 32k memory expansion.

NOUVEAU. RAPIDE



ET TRES FACILE.

```

/* Table de conversion Fahrenheit-Celcius */
/* Jean-Luc Brousseau ----- Mauricie 99 */
/* 964 Cinq-Mars */
/* Trois-Rivières */
/* Québec Can. G8Z 3V2 */

#include dsk1.conv;c
#include dsk1.float;c
main()
{
    int fahr, sz, res, s, fah, i1, i2 ;
    char str [20] ;
    float f1 [8], f2 [8], f3 [8], res2 [8], f4 [8] ;
    char *c ;
    sz = 4 ;
    i1 = 5 ;
    i2 = 9 ;
    itof (i1, f1) ;
    itof (i2, f2) ;
    fexp (f1, "/", f2, f3) ;
    for (fahr = 0; fahr <= 300; fahr = fahr + 20)
    {
        fah = fahr ;
        s = itod (fahr, str, sz) ;
        puts(" ") ;
        puts(s) ;
        puts(" ----- ") ;
        res = (fah - 32) ;
        itof (res, res2) ;
        fexp (res2, "*", f3, f4) ;
        fpput(f4, s) ;
        puts("\n") ;
    }
}

/* SPRITE DEMO */
/* JEAN-LUC BROUSSEAU */
/* 5 NOVEMBRE 1986 */

```

```

#include dsk1.grf1rf

main()
{ int i ;
  grf1() ;
  screen(8) ;
  chrdef(64, "FFB1BDA5A5BD81FF") ;
  clear() ;
  spmct(28) ;

  for (i = 0; i <= 27; i++)
  { sprite(i, 64, 2, i * 8 + 12, i * 8 + 12) ;
    spmotn(i, 30, 0) ;
  }
  for (;;)
  { #asm
    LIM1 2
    LIM1 0
  #endasm
  }
}

```

Available after February 1, 1987  
from: Not Polyoptics,  
PO Box 4443  
Woodbridge, VA 22191

(703) 491-5543

### PROGRAM REVIEW:

As promised, one (of many!)  
reviews for your edification:

TOTAL FILER - by Warren Agee from  
Asgard Software.

This program is another innovation  
for the 99/4A. Designed to organize  
your TI Writer text files in a "text  
database", Total Filer gives the  
unorganized (and organized) computer  
user a perfect tool.

I don't know about you, but I  
ALWAYS end up with disks FULL of a  
variety of programs and files...  
plus the odd text file, letter or  
document.

Finding one of these unorganized  
files on a past disk can be just a  
little confusing - even with a  
roadmap of all the filenames. Often  
cryptic names tell me nothing about  
what was saved.

Enter a freeform database. Total  
Filer is menu driven. Simply choose  
the function you need and go. After  
set-up the program gives a series of  
prompts to:

1. Input New Article
2. View Article
3. Edit Article
4. Save Article
5. Print Article
6. Keyword Search
7. Utilities
8. Extras

Article in Memory reminds you what  
you are working on. From these  
choices the entire point is to enter  
descriptive information on text  
files, disk names or numbers,  
locations, abstracts or any other  
type of information in a "freeform"

format. You can change the prompts  
to reflect your way of doing things  
so that the program can organize your  
'shoebox' format if you like.

This is my type of database. With  
the keyword search and wildcard  
option, I can search for anything  
listed in the files! The other  
options in the program include  
searching by titles, viewing and  
printing records, compress the index  
of full disks (to speed keyword  
searches) and printing of a Master  
Listing of all the titles stored on  
your data disk.

Price \$24.95 from Asgard Software  
PO Box 10306, Rockville, MD 20850

Ah Ha! The LAST word on piracy.

In the February issue of Computer  
Shopper there are two references to a  
protection scheme "SMARTI ARTI" to  
protect software from both casual and  
professional pirates. MANY computer  
users are dead honest and purchase  
lots of new software. On the other  
hand, we have the trading routes,  
clubs, friends network and BBS  
downloads for commercial software.  
Apparently seeing your long hard work  
stolen is more than disheartening for  
authors. Many authors are not  
writing new software for this reason.

QED little or no new software.

Now comes a protection running on  
MS-DOS systems which is not like the  
protection schemes of old. You can  
make as many backup copies as you  
like, you can use these copies to  
restore an erased master. You can  
load and run the programs from any  
disk drive, hard drive or RAM disk.  
The trick is that the backup copies  
cannot be executed. The FIRST time  
you run the program, a screen appears  
which asks you to call an 800 number  
to give a serial code. You are given  
an access code for your serial number  
and that's it.

This protection does not get in

**GPL LINKER V1.1 Run Time Version**

NEW FROM MONTY SCHMIDT:

GPL Linker is an ingenious program that places the power of Graphics Language Programming (GPL) at your command. No extra hardware is required beyond standard 32k and disk system. In short, Linker creates runnable program files from compressed (or uncompressed) GPL Assembler object files. You can then run these programs with "Option 5 Run Program Files" of the Editor Assembler Module.

Up to 24k GPL programs can be developed and run on standard 32k systems. Included in the run time version are two demonstration programs and "CONVERT," a public domain conversion program that converts MS BASIC statements to TI BASIC statements. Price: \$21.00 CDN funds \$15.00 US funds.

now \$49.95  
w/Linker \$59.95  
plus Intern \$69.95  
add \$3 shipping

**ENHANCED GPL Assembler v2.1**

**NOW with high memory loader package**

**UNLOCK ALL THE SECRETS!** New GPL Assembler Version 2.1 available exclusively through RYTE Data.

This program provides the power to write, edit and assemble true GPL programs for the TI 99/4A. Create code that accesses console operating system routines directly. Develop programs that use the GPL interpreter and all the features of the TI 99/4A.

This package includes the GPL Assembler disk, printed documentation, GPL tips and hints, update support service and commented GROM/ROM listings (with the book "INTERN"). An example for a command module type GPL program is included with source, object and list files on disk.

Requires: 32k memory, disk drive(s), TI Editor Assembler package. Printer/RS-232 recommended.

**GPL price Reduction**

**GRAM 128k CARD**  
from Mechatronic

**Features:**

- > 128k RAM/GRAM memory • 64k RAM and 64k GRAM
- > Expandable to 512k • Two = 1 megabyte RAM
- > Load and run assembly programs
- > Load and run GPL programs
- > Save GROM modules and programs to disk
- > Save ROM programs to disk
- > Load and run ROM/GROM programs
- > Use "Load" files for custom system operation from main menu screen
- > Add an extra 13k to Basic programs
- > Menu access up to 8 choices (modules, etc.) from main screen
- > Load console GRCMS 0-2 into the GRAM card, modify the 99/4A console operating system for new features!
- > All software is on card. No disk required.
- > Review module library from main menu
- > Hex monitor allows you to change CPU, VDP and GROM memory directly from keyboard input
- > Change CRU address base via switches

**\$249<sup>50</sup> US FUNDS**

THANK YOU! Our business has grown 300% this year. To show our appreciation we are giving away hundreds of dollars in TI products to 99/4A owners or users groups. To enter drawing, (no purchase necessary) send your name and address on a postcard to RYTE Data.

Prices listed in U.S. funds.

New catalogue available.



Designed for the CorComp Clock Peripheral—Triple Tech Card or Stand-alone models. This utility package provides more functions for use in your Extended Basic programs. Direct access to the clock ROM at assembly speed gives you these features: three independent timers to set and read; alarm function; two interrupt routines to display time and date on screen with CTRL T—continuously or on your

command; all time and date displays are in 12 or 24 hour format using TEXT. This program also allows the week, date and time to be set independently rather than all together.

Program disk is not copy protected to allow you full use in your Extended Basic programs. Package includes disk and instructions. Only \$17.95 plus \$2

**XBII plus**

Totally compatible with TI's XB, this enhanced version gives your programs more power to access your 99/4A. Commands such as MLOAD, MSAVE, VPEEK, VPOKE, GPEEK are superior to most other Basic environments. Various demo programs and new applications using high resolution graphics make this module a "must" for Extended Basic users. Comes complete with a 95 page manual. Requires console and 32k. \$75.00 (US) plus \$2 shipping.

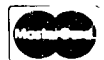
As reviewed in Micropendium October 1985. This command module gives you all the features of Extended Basic PLUS 40 new commands.

**BASIC Compiler V1.1**

existing programs. Simply load and compile programs from a menu driven directory on your screen. No extensive re-writing, variable declarations or conversions are required. Compiler produces code-list in one pass containing all variable addresses and jump list. Package includes Extended Basic Loader, Floating Point Loader, Integer Loader, Disk Menu program and DSR program for the Compiler support. This Compiler cannot unravel DEF statements and stops on the END statement—no SUB's allowed. TRACE, BREAK, ON ERROR, CALL LOAD and CALL LINK may produce execution errors. Requires 32k. disk. Price: \$20.00 plus \$2 shipping (US funds).

New Basic Compiler that is finally easy to use! Supports virtually all Basic and Extended Basic commands in

**Ryte Data** (705) 457-2774



**MILLENNIUM COMPUTERS**  
210 MOUNTAIN STREET,  
HALIBURTON, ONTARIO K0M 1S0  
TELEX 06-986766 TOR. ATTN: RYTE DA

the way. It does not add wear and tear to your system. It does not prevent the legal use or backup of your software investment. It DOES prevent the casual or professional distribution of commercial software.

The trend has been towards no copy protection (and falling revenues) in the IBM worlds. Large commercial companies have decided that the inconvenience and backlash effect of protected software is 1) not worth the problems and 2) not effective.

PRIDE SOFTWARE DEVELOPMENT CORP. is offering \$25,000.00 to the first person who can demonstrate the method used to crack this protection. Pride is quite confident that their SMARTI ARTI COPI-CONTROL cannot be broken. Contact PRIDE at 3575 NW 31st Ave., Oakland, FL 33309 (305) 731-4333.

This entire approach will work even better than the "name and address" encryption used. Program copies with serial numbers can simply be shipped as before with only one company holding the "key" to their legal use and distribution. It will even be possible to have legal "software rental" or "evaluation clubs" because the rentee cannot run any copies taken from the 'rented' software.

Therefore, this is the last "article" on software piracy we will run. The point has been made. Best of all, the solution to the "publish and perish" software/piracy dilemma has been achieved by PRIDE.

### MYARC RAMDISK BACKUP:

from the Titex User Group Newsletter

The following diagram illustrates an often asked question about the Myarc RAMDISK memory card. The jack on the back of the card was designed to allow a 9V power supply to retain memory contents when the power was off in the PE Box. This allows a battery pack to maintain power for up

to two hours in the event of a power failure.

1) 9v DC power supply to operate the computer card (Myarc 128k or 512k Memory Expansion Card) during periods when the TI computer is off.

2) In addition, the 9V supply continuously charges the seven rechargeable "AA" batteries to supply power to the computer card in the event of an AC power line failure.

3) The battery backup will provide power to the computer card for approx. one to two hours.

4) The wiring diagram shows Radio Shack part numbers (in parenthesis) which can be purchased for around \$27.00. Hookup requires a DC voltmeter to determine voltage polarity (+ or - terminals) and a soldering iron or gun.

5) EDITORS NOTES: These instructions are for AC/DC back-up for the card. I have found that AC power alone is unreliable for more than a few hours of off time. This battery backup uses rechargeable "AA" batteries but any type of DC power which totals 9 volts will work. If you use 6 "D" cells (not rechargeables) this conversion will be simpler and less expensive. At our calculated rate of use, even this backup should last approximately one year since the AC adapter does most of the back up work.

Use your judgement in determining which method of backup is correct for your needs. Bear in mind that Arthur Leber, TITEX Users Group, Myarc Inc. and myself are not in any way responsible for results not consistent with the users desires. My own recommendation is not to try this unless you are familiar with the terms and instructions used. (Get some more expert assistance). Feel free to write or contact via BBS (516) 475-6463.

### OBSERVE THESE INSTRUCTIONS:

1. Cut the connector off the 9V DC power supply and strip the conductor leads to expose conductors.

2. Attach a DC voltmeter across the leads and plug the power supply into a 120V AC outlet.

3. Determine the + and - polarity of the 9V DC power supply.

4. Wire up the battery holder to use seven "AA" rechargeable batteries in a series connection. Note that this holder normally accomodates eight "AA" batteries in a series connection. After completing the indicated connection only seven batteries are needed for the wiring diagram shown.

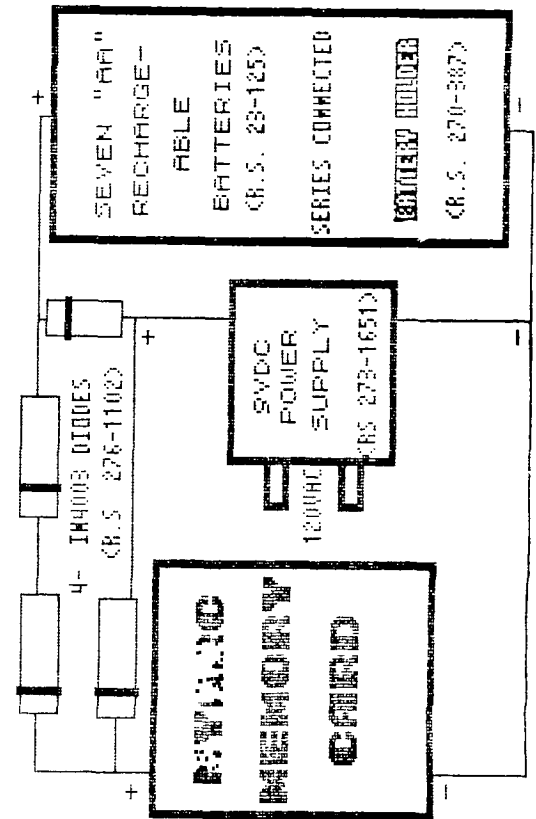
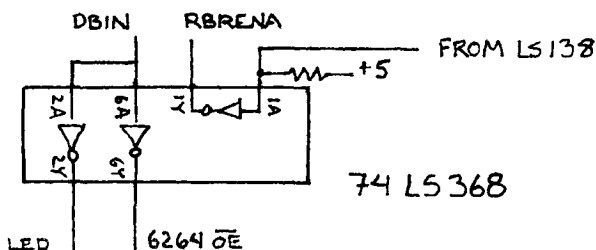
5. Attach the DC voltmeter across the battery holder (with the seven charged batteries in place) and determine the + and - polarity of the battery back up unit.

6. Wire circuit and solder connections as shown in the wiring diagram below.

7. Examine your Myarc card connection carefully. If you do not have the small jack at the back - only three holes, you will need to open the card and add D2, VR1, C26, C26, C29, C30 from the 9V trace to the card circuitry. Sending a 32k card back to Myarc might be a wise move.

8K RAM CARD UPDATE:

The following two leads on the LS368 chip in the diagram were possibly reversed in a drafting error: 1Y and 6A. I designed the chip select circuit such that you have to set a CRU bit ON before accessing the 8k. I believe this will prevent accidentally having the 8k RAM active with another cartridge plugged in that has code at >6000; better than remembering to flip a switch. - Tony Lewis



TECHNICAL DRIVE: a new book by Monty Schmidt (c)1986 is being published by Ryte Data. Covering the TI 99/4A Device Service Routines found in the TI Disk Controller, RS-232, Mini-Mem DSR Link and CorComp Clock Card. Available for \$17.00 plus \$2.00 shipping and handling from Ryte Data, 210 Mountain St., Haliburton, Ontario K0M 1S0 (705) 457-2774

ORPHANS SURVIVAL HANDBOOK a new book by Ron Albright (c) 1986 is being published by Disk Only Software. This book covers all the information to make your computer ever more usefull. Sources of hardware, software, publications, programming, modifications etc. Available for \$16.95 plus \$2.00 shipping and handling from DOS, Box 244, Lorton, VA 22079 (301) 369-1339

GROM LIBRARY BOX a new hardware project by Peter Hoddie and Barry Traver. The GLB will allow you to plug up to 15 modules into the system. From within the O/S you could then access the modules from within running programs. The projected price is said to be about \$60.00 (US).

## FOR CASSETTE USERS:

Clyde Colledges High Speed Cassette Loader by Mickey Schmitt. As promised this month I am continuing with the topic of Clyde's loader. Let me say once again... if you are using a cassette system, THIS PROGRAM IS A MUST! It is by far one of the most impressive cassette utilities available to date!

While loading Clyde's program is not a difficult process in itself, understanding the procedure for the very first time can be a little confusing. With that in mind:

### Instructions-

1. Insert Extended Basic Module
2. Select Option #2 - Extended Basic
3. Type: OLD CS1
4. Then: Press ENTER
5. Follow the directions as they appear on your monitor or TV screen.
6. Wait for the flashing cursor to appear in the lower left-hand corner of your monitor or TV screen.
7. Type: RUN
8. Then: Press ENTER
9. The computer will then return back to the Extended Basic screen with the message: \*READY\* and the cursor will once again be flashing in the lower left-hand corner of your monitor or TV screen. Clyde Colledge's High Speed Cassette Loader is now loaded.

### INSTRUCTIONS FOR USING CLYDE'S LOADER:

1. After you have loaded Clyde's loader type: CALL LINK("OLD")
2. Then: Press ENTER
3. You can load in any program which you have on cassette in half the amount of time that it would have taken you normally!
4. Just follow the directions as they appear on your monitor or TV screen. That's all there is to it.

Clyde's loader has two very special features that should not go without mention. First of all... the high speed routines are exactly

the same as Texas Instruments cassette routines; making this program very user friendly. Secondly... once the load program has been placed in the 32k memory, it will stay in memory... even if you accidentally hit "FUNCTION QUIT". Just retype: CALL LINK("ON") and you are ready to go. You can't lose the "Load Program" unless you turn off the console!

If you wish to purchase this program please send \$5.00 (US) to:

WEST PENN 99"ERS  
c/o John F. Willforth  
R.D. #1 POX 73A  
Jeannette, PA 15644

ATTN: WEST PENN LIBRARIAN

Editors note: This program ALSO allows cassette users to load and run programs LARGER than the 12k limit built into the console cassette routines. It DOES require Extended Basic and 32k memory... which you can install inside your console (refer to issue #5 of R/D Computing). The advantages of this utility are very obvious. Makes life with a cassette much easier!

Next month we promise to publish a schematic to make adding 32k even easier for console owners!

**RENEWALS** For many current 1986 subscribers this is the LAST issue of your paid subscription. If you have not renewed - do so now! Simply drop a cheque for \$14.00 US or \$20.00 CDN into the postage paid envelope and give it to your mailperson!

We will see you with VOLUME 2 ISSUE #20 next month. With the improved time frame we are now able to increase the size of this publication. Please note that we are at 20 pages starting with this issue.

Please help us by submitting articles, programs and interesting information for other TI owners around the world.



We now send issues across Canada, the United States, Israel, West Germany, Italy, Australia, England, Argentina and one in South Africa and Singapore. Thankyou for your support. With you, anything is possible in the TI 99/4A universe.

### TI FAIRES:

There are a number of TI Faires planned for 1987. We are running out of room here but the first (that we know of) is the New Jersey TICOFF March 28, 1987.

Roselle Park High School, Roselle Park New Jersey. Admission \$5.00

Boston Computer Society April 4, 1987

Los Angeles May 2, 1987.

Ottawa Users Gröup and the Chicago Users Group are rumoured to be planning TI Faires in their areas for 1987 as well.

In those famous words, BE THERE!

### LAST NOTE:

A persistent rumour is that CorComp Incorporated has just filed Chapter 7 in bankruptcy court. THIS IS FALSE. CORCOMP DID NOT FILE. The rumour got its start with the fact that companies operating in Chapter 11 must file new documents with the courts at the beginning of the year.

In talking with Mike Norton, CORCOMP is ready to release "Writerease", a TI Writer compatible word processor which works with CorComps "Memory Plus" 256 and 512k memories.

Writerease reportedly has a spelling checker with a 30,000 word dictionary that resides in memory. It will allow you to check a word while working on your document, and is "lightening fast" in operation.

Writerease will be available to all 99ers with 32k and a disk drive. For owners with CorComp memory products, the support files will reside in memory for even faster operation.



# RAPID COPY



If your tired of waiting for your disk manager to copy or format your disks, Rapid Copy is here to help you. Rapid Copy is the only turbo copier specifically designed to take full advantage of the Myarc, CorComp, and Texas Instruments disk controller cards.

How fast is Rapid Copy? Copying a double-sided, double-density disk takes only 1 minute and 17 seconds, which includes formatting the target disk! On average Rapid Copy is six times faster than the disk copy functions of the Myarc, CorComp, and DM1000 disk managers.

Rapid Copy is simple to use, fully menu driven, and allows a multitude of copy and format options. Not only is Rapid Copy endorsed by Myarc Inc. for use with its disk controller card, a new modified version of the Myarc disk manager (included) allows you to load it from within its utility option for your convenience!

Rapid Copy is available for only \$14.95. Requires 32K memory expansion, disk drive system consisting of at least one floppy disk drive, and either the Extended Basic, Editor/Assembler, or TI-Writer command module.

### Texaments

53 Center Street, Patchogue, New York 11772

Mall orders please add \$1.50 for postage and handling. Sorry no credit card orders accepted. Call our office (516-475-8480) or bulletin board service (516-475-6468) for more information. Dealer inquiries are invited.

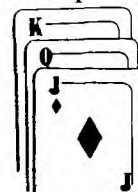


# QUALITY 99 SOFTWARE



QUALITY 99 SOFTWARE!

- Ultra-high speed (written in Assembly Language)
- Superb, high-resolution graphics (uses bit-map mode)
- Beautiful color



## QS-SOLITAIRE

The popular and challenging card game of Solitaire, is now computerized for faster and easier playing. Incredibly easy to play. Lightning fast. Entire columns of cards move in the blink of an eye. Test your skill against Lady Luck. Plus, you get TWO games for the price on one! Also includes Las Vegas style Solitaire, with automatic score keeping. Are you good enough to beat the odds? Many hours of exciting fun. Watch out, this one is addictive!

The best I have ever seen!" - F.B. WI

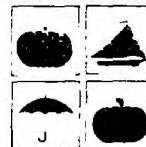
"It is terrific! Executes moves instantly!" - B.D. PA

"Better than the MacIntosh solitaire!" - T.M. MD

Reg. \$24.95

Sale ~~\$19.95~~

## MEMORY FUN FOR



KIDS & ADULTS

## MATCH MATE

Test your memory. Sharpen your powers of concentration. Find matching pairs of objects. Choose a grid of 16 to 49 objects. Select objects to be letters (ideal for children) or beautiful, detailed, colorful, bit-mapped graphics. Simple to play, lightning fast, automatic score keeping. Will use the Speech Synthesizer, if it is present, to speak the letters and the directions. A great game for young and old. For one or two players. Hours of entertainment for the entire family. See who has the best memory. Written in Assembly Language.

Reg. \$24.95

Sale ~~\$19.95~~

## SCREEN DUMP II

The Fastest, Easiest screen dump program in the world, bar none! Print the screen in seconds, in normal or full page size, simply by pressing a key! Print from BASIC programs or from module screens! (with a load interrupt switch, sold separately). Print the screens of modules such as: Tax/Investment Record Keeping, Household Budget Management, Video Chess, Home Financial Decisions, and many more. Works on TI, Epson, Star, Gemini, Micronics, Panasonic, Prowriter, Axiom GP-100, and Gorilla Banana printers.

Reg. \$19.95

Sale ~~\$14.95~~

"All your programs are excellent!"-R.W. PA

## XB-FORTH

Run TI-FORTH w/Ex. BASIC module. (Req: TI-FORTH disk.)

Reg. \$19.95

Sale ~~\$14.95~~

## QS-ASSEMBLER

Assemble pgms w/Ex. BASIC module. (Req: Ed/Asm disk.)

Reg. \$19.95

Sale ~~\$14.95~~

## BEST OF DRAW 'N PLOT, VOL. 2

Ten more outstanding picture files!

Reg. \$19.95

Sale ~~\$14.95~~

## ATTENTION PROGRAMMERS!

Like your programs to receive world-wide circulation? We will market them for you. Contact Larry Hughes, 202-667-3574.

---Clip & mail---

To order: call (202) 667-3574, or clip and mail this coupon to the address below.

Program	Price
	\$
FREE Shipping with 3 or more programs	Shp & hnd + \$ 4.50
TOTAL	\$

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

State, Zip \_\_\_\_\_

Credit card:  VISA  MasterCard

Card # \_\_\_\_\_

Expire \_\_\_\_\_

Signature \_\_\_\_\_

Phone ( \_\_\_\_\_ ) \_\_\_\_\_

Cut out address label, and tape it here.

QUALITY 99 SOFTWARE  
1884 Columbia Rd. #1021  
Washington DC 20009

### TIGERCUB SOFTWARE

Over 130 original entertainment, education and programming utility programs in Basic and Extended Basic on cassette or disk. Only \$3.00 each! Eighteen different full-disk collections, just \$12.00 each! Descriptive catalogue \$1.00 refundable. TIPS FROM TIGERCUB full-disk collections of 50+ programs and files from Tigercub Tips newsletters, Vol. I, II and III \$15.00 each; any two \$27.00; all three \$35.00 postpaid. NUTS & BOLTS (#1) and (#2) full disks of 100+ utility subroutines in XBasic 'merge' format, ready to merge into your own programs: \$19.95 each, both for \$37.00 with documentation, postpaid. Orders to Tigercub Software, 156 Collingwood Ave., Columbus, OH 43213.

### SMART MODEMS FOR ONLY: \$39.00

Completely TI compatible. Add \$6 if using CorComp RS232. Modems are auto dial/answer, come with RS232 cable, manual and telephone cable. Power supply is NOT included. Power requirements are fully documented. Power supplies may be available for a short period of time. Only 50 modems to sell!

Write to: Smart Modems  
14436 FENTON  
REDFORD, MI 48239

Send US funds for foreign equivalent. Make check or money order payable to: Scott A Sorel. If a power supply is desired add \$10. Money will be refunded if quantities are sold out upon arrival of order.

**WANTED: TI DISK DRIVE CONTROLLER CARD**  
Have you or your friends upgraded to a Myarc, CorComp or Atronic DS/DD Disk Drive Controller Card? We would like to purchase your old TI controller card. We only require the card - and the Disk Manager II module if you still have it. No cables, stand alone units or power supplies. Contact Ryte Data (705) 457-2774 9-5 M-F.

### MAIL LIST

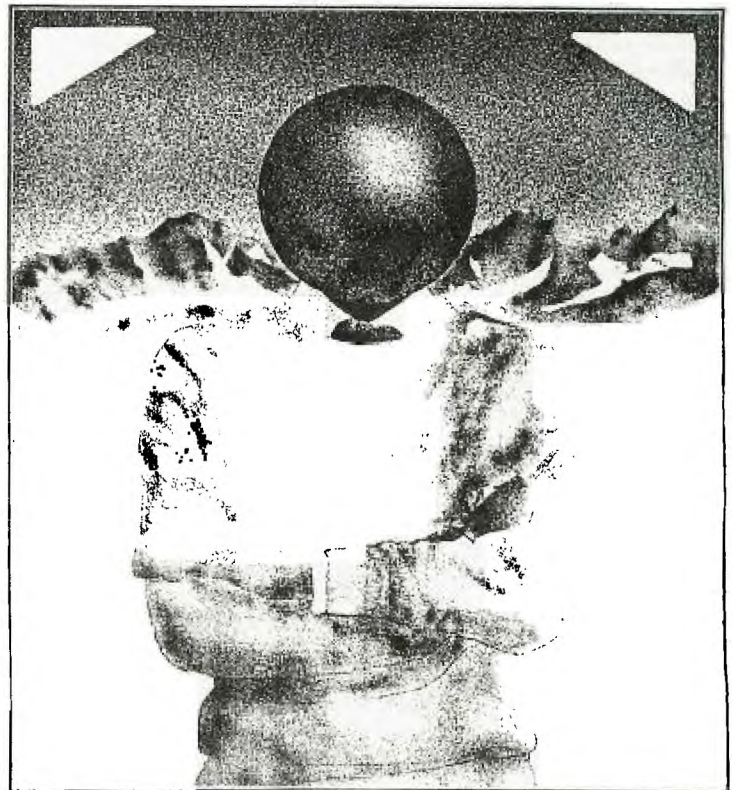
Mail list stores up to 400 records. Sort by name. Search by part of last name. Print labels and listings. Entire program loaded into memory eliminating numerous disk changes. Requires TI 99/4A, XBasic, disk drive, 32k mem. Printer optional. Write: K.G. Mori, 181 Atlantic Avenue, Winnipeg, Manitoba R2W 0P7 Canada.

Where is the following subscriber:

CHRIS EISENHART  
32283 BOCK  
GARDEN CITY, MI 48135

another one YVONNE BRUNET from Quebec also vanished leaving no address!!!

*not*  
**POLYOPTIC**



SOFTWARE FOR THE TI 99/4(A)

## SUBSCRIPTION COST:

\$14.00 (US) for 12 issues \$20.00 Cdn. all via First Class Mail.  
\$19.00 (US) overseas Airmail Delivery.

## BACK ISSUES:

Back issues are available for \$2.00 each, **subscribers** only for these issues —

- V1.2 sold out.
- V1.3 TMS 9995 Memory Map & specs numeric keypad project.
- V1.4 XB II **plus** by Mechatronic, Myarc 128k card, Autofire joystick project.
- V1.5 32k internal memory project, DS/DD Ramdisk, Auto power-up project.
- V1.6 Myarc 256k computer, "C" compiler, RAM/GRAM card.
- V1.7 Maximem review, EEROM programmer, Sense and control card.
- V1.8 Sold out.
- V1.9 Dual disk controller project, RESET switch project.
- V1:10-11 Double Issue: LA TI FAIR, Bill Gronos on Assembly, Super load switch, EPROM programmer.
- V12.5 Myarc 640k Geneve, Console speed upgrade, Video monitor filter, Gramcracker review, ATRONIC products.
- V14.5 Expansion Box 8k 'module,' Super Clock Support, Basic Compiler, 9938 Video Chip.
- V15 Video upgrade @ 15mHz, Quad Density TI Disk Controller, 80 Column Display preview.
- V16 P Box Modification, Multi-Module project.
- V17 Tigercub, Eprommer update, Quad density update.
- V18 Power Supply, RAVE 99 Keyboard, Year Review.

**R/D COMPUTING** is published monthly by Ryte Data in Haliburton, Ontario. Copyright 1985.

All material is from sources believed to be accurate. The publisher takes no responsibility for errors, omissions or misprints. Articles may be reprinted with credits giving source and address by users groups for publication.

Articles dealing with Texas Instruments 99/4A and 9900 based computers are published. Special attention is given to projects and information on upgrading and modifying the 99/4A console and system.

Please send any information on products, hardware, software, or modifications to our address. We cannot accept responsibility for materials submitted and, unless stated otherwise, will assign all manuscripts etc. for publication.

**Only** manuscripts with sufficient postage and self-addressed mailer will be returned.

Un-classified ad rates are \$1.25 per 40 character line. Count ALL characters, spaces, etc. and submit with payment to our address. Ads are run in order received. Deadline is 21st of each month.

**YOU MUST NOTIFY US OF YOUR CHANGE OF ADDRESS SIX WEEKS IN ADVANCE. PLEASE SEND A CHANGE OF ADDRESS CARD WITH YOUR OLD AND NEW ADDRESS.**

**Ryte  
Data**

210 MOUNTAIN STREET  
HALIBURTON, ONTARIO K0M 1S0  
705 457-2774



EDMONTON USERS GROUP  
PO BOX 11983  
EDMONTON, ALBERTA T5J 3L1