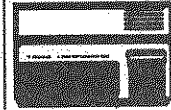




West Penn 99'ers

Supporting the TI-99/4A Home Computer



Established 1985

ISSUE #66

February 1991

FOR THE RECORD

by: Frank Zic

Mickey banged the gavel at 7:20 P.M. We met upstairs (closer to GOD). This move must have worked since Mickey later announced that she became engaged over the holidays, to Michael Cedrowski. Lots of happiness to you both from all the club members. More information later.

Mickey thanked Mr.(Ed) for taking the minutes and to Judy & Ralph, Mike Sealy and of course Chris Pratt for their efforts on our new inter-state assembly of the newsletter. A first in newsletter publications, I'm sure. Lynn gave a favorable treasurer's report. Don't forget to pay your dues NOW. Bob said 8 new disks were added to the library: Fnlwb 4.31, 40 & 80 column versions; TI Conference I & II; 3 new card games and Speech Coder. Lynn demoed the card game. John W. was back to his old (really young) self, giving us good info all night long. One comment was using a TI Midi-interface and being able to view PC pictures. Another was using two Speech Synthesizers for a new sound effect. Next month John will put a PC power supply in a TI P-box. It should run cooler and is more economical than replacing with the original equipment. Next, Gary reported on the BBS board. The whole month went by without a major hitch. Let's not change a thing while we're ahead. The board # is (412) 341-4820. TI fiests were dated for this year as follows: March 9, Ticoff; April 6, Boston; May 5, Long Island and May 17,18 Lima. Double check these dates closer to event time.

Old business. A complete inventory check was made and everything was accounted for in storage. Don't forget to sign the module sign-out book when borrowing items. Re-inking ribbons still \$1. The Lima fiest tapes are again available. Try e'm, you might like them. Mickey pointed out in the Dec.90 Micropendium: page 35(German TI show), page 36(YAPP) and page 40(Module expander). Next meeting demos will be, Lynn on TI Base and Paul Groff on Page Pro. Mickey will soon be authoring some articles on "Getting the most from your user group". A raffle was held with some nice prizes and even the losers liked it because they knew their donation helped the club. Swamp land any one?

New business. Ticoff this year will be a combination Computer & Ham Fiest. Boston's Fiest this year will be called- New England TI Home Computer Fair. The Wash. DC fiest will be held in April or May (ed. note -- the DC show will probably NOT be held until later in the year or maybe even not until April of 1992). Should you want to give a demo, just let Mickey know ahead of time. A comment was made that our newsletter was received so quickly, the ink was still wet. Chuck Bower's list of sale items was passed around.

May the good 4's be with you.

WEST PENN 99'ERS CLUB INFORMATION

NEXT MEETING DATE

FEBRUARY 19, 1991
7:00 P.M.

MEETING LOCATION

ST. STEPHEN'S BYZANTINE
CATHOLIC CHURCH

JUST OFF ROUTE 30
BETHEL ROAD, NORWIN

LIST OF WEST PENN OFFICERS FOR 1991

PRESIDENT:	Mickey	412-335-0163
VICE PRESIDENT:	John	412-527-6656
TREASURER:	Lynn	412-835-4304
RECORDING SEC:	Frank	412-751-6065
CORRESPONDING SEC:	Mike	614-282-5627
LIBRARIAN:	Bob	412-863-5672
NEWSLETTER EDITOR:	Chris	301-322-6150

GENERAL ITINERARY OF THE CLUB'S MEETING

6:45 P.M.	DOORS OPEN
7:00 P.M.	GENERAL MEETING
7:45 P.M.	DEMOS & NEW INFO
8:45 P.M.	TI BASE SIG
8:45 P.M.	PAGE PRO SIG
11:00 P.M.	DOORS CLOSE

MEETING HIGHLIGHTS FOR THIS MONTH

- * LATEST T.I. NEWS AND SOFTWARE DISCOUNTS
- * REPORT ON THE FEST WEST SHOW IN ANAHEIM
- * PREMIER RELEASES BY MS-EXPRESS SOFTWARE
- * FONTS AND BORDERS I, DEMO LYNN GARDNER
- * FONTS AND BORDERS II, DEMO LYNN GARDNER
- * "GETTING THE MOST FROM YOUR USER GORUP"

RENEW YOUR MEMBERSHIP DUES!

\$15.00 PER YEAR FOR INDIVIDUAL / FAMILY
\$10.00 PER YEAR FOR JUST THE NEWSLETTER

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Best Buys Feb. '91

This month I wish to bring to everyone's attention the special that Tex*Comp is having on a bunch of surplus disks. They have name brand (Sony, Memorex, Verbatim, and BASF) 5 1/4" diskettes which are rated at SS/DD for only \$1.29 per box of ten (minimum of ten boxes must be ordered). These disks are about six years old but are still in factory sealed packages. They come complete with labels and write protect tabs. Although they are only rated single sided, Tex*Comp has tested hundreds and found them to format and test DS/DD (I too will back this up -- I purchased over 500 disks and all that I have used so far have been flawless whether I formatted them 90K, 180K, or 360K). For large orders (over 100 boxes) Tex*Comp will pay UPS shipping costs.

Tex*Comp also has available the same deal for 3 1/2" disks. The 3 1/2" disks are \$2.49 per box of ten SS/DD (but again will format DS/DD). The two boxes I purchased came with 4 free Sony disk holders which hold 5 disks apiece!

You may have to hurry to place your order as Tex*Comp has only a limited quantity of these disks. Ordering info: P.O. Box 33084, Granada Hills, CA 91344. (818) 366-6631.

TALES OF A POWER SUPPLY, PART II

by Tony Lewis 12/90

Having just read the "Tales of a Power Supply" article in the December 1990 issue of the West Penn 99'ers newsletter, and having a little free time, I decided to put my two cents in concerning upgrades to the Pbox power supply.

As you may recall, my friend Al Beard told you how to convert your original Pbox power supply system to use a modern PC type switching power supply. Basically, the original Pbox power supply system used linear voltage regulators to generate the power for the +8, +16, and -16V lines in the Pbox. A linear voltage regulator takes input voltages that are much higher than what you'd like to see come out the other side, and (without going into too much technical detail) converts the excess voltage to heat. Linear regulators have efficiencies of 40-60% depending on how they are made. In other words, up to 60% of the electrical energy that goes into the linear regulator gets converted to heat, and not electricity. Hence the need for a cooling fan in the Pbox, and heat sinks on the better designed cards (some TI and third party cards used the metal clamshell as heat sinks for the regulators). Why use such inefficient regulators? Because they are cheap, and they only need one part (the regulator itself) to work. That saves space on the Pbox card.

Switching regulators, on the other hand, have higher efficiencies, around 80% or more, which translates to less heat. They do cost more than linear regulators, and usually require extra parts like resistors, inductors and capacitors. But with high conversion efficiencies, they don't produce the heat that linear regulators do. The PC type power supply that Al bought was of the switching type.

Now, the original concept of the Pbox was to provide the raw high voltages for each card, as well as the regulated +5 and +12V needed by the (one) floppy drive (remember, this is the early 19805). While the floppy drive got regulated power, the cards had to have their own voltage regulators to get the right voltages they needed. The advantage to this is that if one card experienced electrical problems, then the rest of the system was unaffected, and you could tell which one went bad because its light was out. And the regulator just had to keep up with the fluctuating power demands of the card it was on; the main power supply voltages was set high enough to account for the system fluctuations of all the cards operating at one time.

The fly in the ointment was pointed out by Al in his article: the raw power put out by the Pbox power supply is much higher than 8V and 16V and -16V. And the greater the difference between the input voltage versus the output voltage that a linear regulator has to maintain, the greater the heat that the regulator has to try to lose. The third party cards that do not have the metal clamshell enclosure, or any other heat sinks, can suffer from localized heat buildup when the card is in operation, which can lead to the brown areas mentioned by Al.

In Al's article, he basically told us how to convert the Pbox power supply system to a PC-type power system whereby the main power supply has all of the responsibility for voltage regulation. The PC power supply outputs the +5, +12 and -12V to the disk drives and the peripheral cards, and it alone must maintain the voltage levels within the $\pm 5\%$ most devices need. To convert the peripheral cards, you simply jumper the input line to the existing linear regulators on the card to the output line, effectively bypassing the linear voltage regulator, and eliminating local heat buildup.

I'd like to add just a few extra considerations into the concept that the reader may want to think about before implementing the power supply conversion mentioned in Al's article:

1) With the modification as per the original article, the main power supply is the only source of regulation. If your power supply is undersized, then the voltages may go outside their specified ranges when a heavy load (such as a hard drive or the Geneve) operates. And digital electronics do not like their voltages to go outside a tolerance of $\pm 5\%$ of the specified input voltages. So do not try to save a few bucks and get a power supply rated below 150 watts. If you have a maxed out system like Al Beard, then a 200 watt power supply is required.

2) **BE EXTRA CAREFUL IN INSERTING AND REMOVING PERIPHERAL CARDS.** Turn the power off and take a walk around the block for 10 minutes or more. TI unfortunately put the +16V and -16V lines right next to some signal lines in the Pbox, as well as ground lines. With the modified power system, one short to one card is a short to all cards, which is not very desirable. Likewise a power short in a card in operation can have damaging effects on the whole system.

As an alternative, I'd like to present how I modified my Pbox power supply. I also have a switching power supply, but mine is feeding only the disk drive system. For the Pbox, I went in and replaced the linear voltage regulators. I put in true -16V and +16V, 1 amp regulators with extra capacitors for the higher voltage lines. For the 8V line, I used a LM338K adjustable regulator, capable of producing up to 5 amps (talk about overkill!), with a large heat sink. This system has the advantage of separate power supplies, such that operation of the disk drives can not possibly affect the peripheral cards. However, if I ever do it again, I'll probably just gut the Pbox power supply out and replace it with an external switching power system. That will give you the best of all worlds. The heat problem will still exist on the peripheral cards, but the with the raw input voltage at a true 8V, instead of 12V or higher, the heat buildup is negligible. Please be careful in any work you do with power supplies, and have a friend double check your work before turning the power on.

-WP♦

CLASSIFIED ADS

Wanted: TI-99/8 computer.
Call 301-322-6150 or write:
Chris Pratt
5613 Hawthorne Street
Cheverly, MD 20785-1118
with information.

For Sale: TI Hardware.
Myarc 512K Card for Geneve -- \$175.00
TI DS/SD Disk Controller -- \$30.00
32K Memory Expansion -- \$30.00
Call or write above address. Ask for
Chris.

For Sale: TI-99/4A Consoles
Black & Silver -- \$15.00
Beige -- \$20.00
TE II Module -- \$5.00
TI Modem 300bps -- \$8.00
See John Drennen at the meetings or
Contact him at:
455 Tenth Street
Struthers, OH 44471-1050
216-755-7550

-WP♦

CONFIDENTIAL FILE

Guest Columnist: Tony Lewis

A POTENTIAL PERIPHERAL

Speaking of Tony Lewis and Al Beard, we have been conferring for over one year (we're busy folks) on a semi-secret project for a new peripheral for the TI and Geneve. Modern personal computers (IBM, clone, Mac, etc) usually have the capability to utilize a specialized microprocessor called a math coprocessor. A coprocessor will do something much more efficiently than the main processor, and usually much faster too. A math coprocessor is set up to intercept requests to the main processor to perform complex math, perform the math, and tell the main processor what the answer is (much like having a smart friend in school). The main stumbling block is that math coprocessors are usually designed to work only with a certain main processor (ie - the Intel '387 math chip only works with the Intel '386 microprocessor). However, it turns out that the good folks at Motorola designed their math coprocessors, the MC68881 and MC68882 to work in a 'peripheral' mode with just about any microprocessor, as well as a true coprocessor with the 68020 and 68030 micros. After reading the data manual for the 68881, and consulting with the Motorola engineers, I determined that the 68881 could be used with the 9914A or the Geneve. It will take some slightly complicated circuits and software, but overall the 68881 can perform single and double precision mathematics far faster than either the 9900 or 9995 micro could do in assembly alone.

Who would want such a peripheral, why would they want it? Well, serious users who utilize the FORTRAN or C compilers could see a dramatic increase in speed and accuracy of their programs. Graphics based programs, particularly those that are on machines with the V9938 video chip could support faster drawings, since the 68881 could determine the position of the individual bits more easily via various built-in trig. functions. The built-in BASIC/XBASIC could not directly use the math functions; assembly programs would have to be utilized to access the chip.

The cost of the card would possibly be as low as \$150, if done as a kit. The majority of the cost would be the 68881 chip, which retails for around \$90.

Please note that this is not an 'announcement' of a new product. The facts are that there may only be just one of these ever built. And what we have right now is not completely working right yet, so the whole project may just wind up as a lot of part-time effort to create a non-working peripheral. However, I am curious as to the possible interest in the TI/Geneve world for a math coprocessor peripheral as described above (any interest by others is always a good incentive on cold winter nights to keep plugging away). If you would possible be interested in such a device, please drop me a card or letter to the address below, or leave me a message on Compuserve (73357,1730) or BIX (tonylewis), or contact Al Beard.

Thanks for your support and interest.

Tony Lewis
409 Drolmond Drive
Raleigh, NC 27615

-WP♦

SLIDING BLOCK SOLUTIONS - SERIES I

BY NORMAN ROKKE

Could you use a little extra help in solving our *Sliding Block Puzzles - Series I* disk? Then, let MS Express Software introduce you to *Sliding Block Solutions - Series I*.

This Sliding Block Solutions Series was written in direct response to those sliding block puzzle enthusiasts who would appreciate having a little extra help in solving the sliding block puzzles which are found on our *Sliding Block Puzzles - Series I* disk.

Our Sliding Block Solutions Series was specifically designed to give you just the right amount of help that you need. There is never any risk in spoiling the game at any time, since you control the amount of help that you will be receiving.

In fact, we even let you choose whether you would prefer to receive your help via your monitor or TV screen, via your printer, or both.

Our Sliding Block Solutions Series is very user-friendly in every sense of the word!

So, what are you waiting for? Help is just a mailbox away. Order your copy of *Sliding Block Solutions - Series I* today.

Sliding Block Solutions - Series I requires a TI-99/4A console, a color monitor or color TV screen, a disk drive system (minimum configuration of 1 SS/SD drive), 32K memory expansion, a TI-99/4A compatible printer, and the Extended Basic Module.

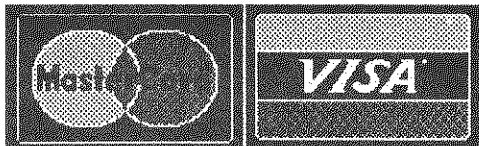
MS EXPRESS SOFTWARE

P.O. BOX 498, RICHMOND, OHIO 43944

<i>Sliding Block Solutions - Series I</i>	_____ X \$7.95	
Name:	SUBTOTAL	
Address:	OHIO TAX	
City:	\$1 PER ITEM S&H	
State & Zip:	GRAND TOTAL:	
Card number:	Expiration:	MC 4 digit #:

SIGNATURE OF CARD OWNER: _____

**We Gladly
Accept:**



CONTROL OF THE CS1 REMOTE

by Ed Hall

(Reprinted from the Nov. 1990 issue of MANNERS)

Have you ever wondered if there might be a way to control the remote line which turns on and off the cassette motor? Well there is a way and it doesn't take too much work either. You do need the 32K memory and for the following program the XBASIC cartridge as well. First let's talk about why you would want to control this line for anything else. What about using the computer to control other devices? With a little bit of circuitry and the following code a program could be written to turn on and off lights or maybe a stereo. Your TI could be at work while you're away. It could be used for security.

The following set up a link program will to allow user control of the cassette remote control for CS1. By doing so, an XBASIC program can be used to control external items other than the cassette recorder. This program has to be loaded and run in Extended Basic with the 32K memory expansion operating.

```
110 CALL INIT
120 CALL LOAD (16368,79,70,70,
32,32,32,36,252)
130 CALL LOAD (16376,79,78,32,
32,32,32,36,244)
140 CALL LOAD (8194,37,4,63,240)
150 CALL LOAD (9460,2,12,0,45,
29,0,4,91,2,12,0,45,30,0,4,91,203,78)
```

Once the program is run, control of the remote is accomplished by the command, CALL LINK("OFF") to turn off the control and CALL LINK("ON") to turn on the control. I would suggest trying this first while watching the cassette spindle, with the cassette on, to see how it operates. Once you get a feel for it, you can write a program in XBASIC to perform the timing.

-WP♦

West Penn 99'ers

TechTalk

by: Mike Maksimik

(Reprinted from the Jan. 1989 Chicago Times)

Some of you may have followed TI's developments in the time that the 99/4A was at it's childhood. All sorts of plans, marvels, new things for the home computer that "was ahead of it's time." There were several peripherals developed by TI but were only released in tiny quantities, mostly to the TI employees that got the pick of the crop. Some of these never made it to the production lines, but only a few prototypes survived.

The modem card, which essentially was a Novation Cat 300 baud modem, was placed on a peripheral card, and a DSR ROM was given it to control very low-level functions, such as modem-to-vdp RAM interrupt routine, powerup routine, etc. It would work with a command module, like TE II just as the disk manager module works with the low-level routines in the disk controller to perform the DOS functions. Only a very few of these survived. Another little known card was the IEEE 488 bus controller card. It contained the TMS9914 GPIB (general purpose interface bus) that allowed the lab and mechanical equipment that used GPIB to interface to the TI. One could access the GPIB like a file device. This same standard is found in unexpected places. Any of you have a commodore 64? The communications bus used to connect it's ring-style bus of peripherals is a modified GPIB, one of commodore's own design. The SCSI interface (small computer systems interface) is essentially a multi-GPIB, allowing very fast buffered serial transfer between storage devices. SCSI also has interrupt lines to alert the host that data is waiting to be read or written. The VCR controller, a \$500.00 range peripheral, along with support software, was introduced as a means to combine video from a VCR and the video from a TI. The card would control playback, hold, framing, and other functions. Digital Research created a similar product to control videodiscs that attached to an apple or a commodore 64, although much later than TI's development. The debugger card, a little known device, was in existence when the 99/4A was born. In fact, it's design can be rooted to the support hardware in the 990 minicomputer series. Essentially, the TMS9900 is a minicomputer on a chip. The editor/assembler GROM was a virtual image of the DX10 assembler used on the 990 minicomputer. Some directives one would only find on a minicomputer exist in the editor/assembler package, but were dormant in Special Insert

the 99/4A. The debugger board was designed to bring the 99/4A closer to a minicomputer's environment. The DEBUG program, included with the editor/assembler package, has several features that cannot be used without this piece of hardware. In fact, the editor/assembler looks as if it was taken direct from a 990 itself. The only added features were the GROM utilities, such as VMBW, DSRLNK, LOADER, etc. that didn't support the features that a 990 could handle. It's too bad that TI wishes to keep the plans for this card on ice, it would be a dream to program with. It allowed multiple breakpoints by using the XOP opcode, which would allow you to step your program through and look for errors or miscalculations. Although we can do this through software, the debugger board used a hardware approach. The design of this board, and what it contained, are up for grabs. If anybody knows, I'd appreciate you sharing with the rest of us. Send me a letter. Still another rare peripheral was the GROM library peripheral. It essentially was a super-widget that could access A- of the GROM in the cartridges. This would be handy for TI BASIC, since TI BASIC searches external GROH for subprograms. TI extended BASIC does this too, but doesn't search DSR ROM when a program is running. Modules like TE II, personal record keeping, and extended BASIC could all be plugged in and the CALL routines could be accessible to BASIC. BASIC could use the commands it wished to whatever, and all you had to do is plug your favorite "flavor" modules into the library peripheral to get the necessary language expansion. Imagine a GROM cartridge giving advanced graphics to TI BASIC, another for print spooling, still another for expansion memory control. Others for high speed cassette routines, etc. so the language could expand by adding cartridges. It's the same technique used with the peripherals: the computer never becomes obsolete, because it automatically responds to any new device attached. This is true of the library peripheral. This is another device I would LOVE to see.

Some of us have the Hex-BUS controller. In the days of the 99/2, the CC40, and the 99/8, the hex-bus controller was introduced for the 99/4A to allow compatibility with these devices. Essentially, they were designed like the Commodore 64's peripheral system, where a slow serial transfer was appropriate for the hex-bus devices, a disk drive wouldn't be feasible. So TI never considered the HEX-BUS disk drive. The Wafertape drive, the CAT modem, the RS232/parallel interface, and the 4-color printer, were all developed. All were battery operated and could fit in a briefcase, as did the CC40. For

the 99/4A, it was an inexpensive means to expand. The hex-bus controller was a small device containing a DSR ROM that controlled the I/O drivers which "spoke" to the hex-bus peripherals. Since the main use was for the CC40, it wasn't pushed for the 99/4A. The 99/8 could also rely on the PE BOX for its devices. It had its own special FLEX CABLE card, which used some special control lines to expand its own capabilities. Since the 99/8 used a TMS9995, the same as the GENEVE, it could use the extra 3 address lines in the PE BOX, giving a total address space of 2 to the 19th power, or 512 k of directly addressable memory. Since some of these banks were probably switched, the address space grew to a total of 4096 k, which is sufficient for MOST of my needs. The speed of this processor was greater, and its throughput was even greater, but more on that later. Some other control lines were used, some to indicate a 9900 or a 9995 present in the system, some to allow multi-level interrupts, still others to initiate HOLD sequences, which are found on the mainframes, and large multi-user systems as a way to deal with wasteful processing, and interrupt idling. TI had a HARD DISK controller in the plans, probably MYARC's, but the technical data I have is 1982. I own a rare card. Some of you may remember a company called A/D electronics, out of Sacramento, California. They produced a control card which allowed sampling of environmental data through an 8-bit analog-to-digital controller. This device allowed hookups of many items, such as temperature probes, light transducers, etc. and was mainly used as a scientific device. Some possible uses included home control, because it also contained a real-time battery backed clock. Plus, there were separate digital inputs and outputs, for switches and relays, respectively. My main use for the A/D card, FIRST ADE, is a mouse. The RADIO SHACK color mouse contains two potentiometers turned by a rolling motion of the mouse. The potentiometers, when interfaced with the ADC0809 chip, (two channels, x and y) gives me mouse control with TI ARTIST. I wrote the DSR myself, and have been using this device for about a year and a half. The NSF clock card is a similar device, although it does not contain a digital input or output array. The ADE card, however, could also switch external relays, or sample data on 16 lines (8 in, 8 out). If timing was correct, an 8-bit parallel interface was possible. I still use this card, and the clock is handy for keeping my p-system master disk up-to date. The FORTi music card was a device which allowed one to produce sound on not one but 4 extra TMS9919 sound generators. By arranging the frequencies

on the 12 music channels available, different waveforms were possible. Now, with the FORTi, sounds even a c-64 owner could envy were possible. And, there were 4 percussion channels independent of each other. I can imagine "AXEL-F" running on this card!! And of course, we all know of the more common peripherals, the triple tech, the disk controllers, the 32k cards, the rs232 cards. Even these make our computers sophisticated enough to meet TI's long dead expectations. I also own the p-code card, and another article is devoted to THAT!

I mentioned the TMS9995 earlier. Just what exactly is a pipeline microprocessor? Well, the 9995 is not only fast, but it has a distinct advantage over others in it's class, even the intel 80386. Those processors rely on expanded address lines and increased instructions to increase throughput. There was a deeper approach, one that TI envisioned in the 9995. A pipeline microprocessor is one that incorporates special hardware that allows it to have more than one part of the microprocessor running at the same time. These CONCURRENT functions provide that while one instruction is being decoded inside the chip, another is being fetched from memory. Still another is being executed after it has been decoded. At best, with top-down code, and very little jumps, the microprocessor can achieve a throughput 3 times, or more, depending on the level of pipelining, over a regular processor running at that speed. For example, if we put test code into a 9995 and a 9900 running at 12 MHZ, the worst case is that the two run even. But the 9995 can pipeline, and with the pre-fetch and post-store the 9995 can LOOK like it's running 16, 20, or even 24 MHZ. And with the reduced instruction set in the control ROM, the 9995 has a distinct advantage over an 80386, it's MUCH cheaper to produce. The control ROM is a hard-wired design, while the 80386 has to be programmed externally. It is an easy device to interface to a memory system, and with no-wait state static RAM, the memory-9995 combination (up to 4 megabytes) can be phenomenal.

Currently, I am working on a software project. It's a new DOS for the TI, somewhat reminiscent of COMMAND DOS that Ryte Data released some years ago. However, there is no image file required because the DOS I have resides in a E/A supercart, and the utilities that it needs are extracted from the E/A GROM--that way, I can restore the lower memory expansion to a defined state very quickly without reading from a disk drive. The DOS is completely self contained, and will provide a choice for you on the master title screen. I am a college student,

doing projects to complete my final years of undergraduate study in computer science. This project was inspired by a need for a better operating environment for the TI as well as a need for me to see if it could be done. Well, I have succeeded! The DOS uses the DSRLNK utility to attach to the low level device drivers. It gives you the familiar A>DOS prompt, and will mimic DOS to a degree, but with one delightful exception--the DOS is being written by me, and I can have it do whatever I want it to! I will no longer be a slave to incomplete DOS commands or ambiguous and useless syntax, often the product of overpaid software developers. The commands are clear and precise, and the DOS is very short, only about 5k at this writing. Since most of the DOS is already present in our machines, in places like the EtA GROM, the disk controller IRON, the RS232 interrupt routine--all of these put together with the right glue can make a great DOS, and all I did was to provide the necessary glue for the parts, [and it works] It has a batch file load and execute, D/F 80 loader (compressed/uncompressed), program file loader, dos utilities (FORMAT, COPY, RENAME, DELETE, ASSIGN) and screen control commands (WAIT, BEEP, CLS, GOTOXY, PRINT, ECHO ON/OFF) and "smart" control keys, as well as a 255 character input queue for type-ahead. Many of the commands are internal, and they reside only in the supercart. Other commands can be created from object code, which you can create from any one of the compiling languages, or the assembler (i prefer the assembler) and by simply typing the name of the file at the command prompt, the file will be loaded and executed.

I hope to have some sort of language compiler for DOS, such as a basic/pascal compiler, to facilitate creation of programs and utilities. My plans include a file transfer utility (terminal emulator), windowing, an 80-column editor, and multiprogramming. If for no other reason, then to gain experience and to enjoy doing it on my \$49.99 TI99/4A. Of course, I wouldn't dream of charging anyone for this DOS, and I've had some interesting suggestions for names. "F-DOS" by our own editor, BOB DEMETER, for FROGMAN-DOS, since my "other" hobby is SCUBA DIVING, "XIOS" for eXtended Input Output System, and whatever...I am using version 1.24, which is relatively complete. I would just like to add the bells and whistles, plus write a manual on it's use. Now for some more TechTalk.

If you are confused as to why computers like the c-64 and the apple all have DOS commands built in...well, the designers of those computers anticipated a disk system, and

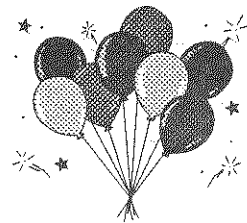
available to most users, so the operating system and BASIC language all had the DOS commands either in the disk unit itself, or in a disk BASIC which loaded in on powerup. Since TI did things a little differently, they preferred to make DOS a separate thing, with a disk manager module to handle disk tests and formatting. It seemed a little annoying that in order to rename a file from BASIC, you had to either load the program and save it under another name, or if it was a DATA file, you had to OPEN it and read all of the data, then re-save the data to disk under another OPENed file name. This could be terribly inconvenient to users, but consider what the others have...the c-64 must send all of it's DOS commands through a command channel, and the disk drive will run itself. It essentially is another computer, a 6502 based one, to be exact, that only accepts commands from a serial line and performs all of the disk commands. Imagine.. a computer so STUPID that you need TWO computers to run any disk software...and you would be paying for TWO computers also. Commodore doesn't tell the average users that they are essentially using TWO computers instead of one. Apple computers are also based on the 6502 series of microprocessors. Apple used an old method of running it's computers...just write a DOS and put it on disk, and when the computer is powered up, the DOS is loaded. Funny thing, though. Although Apple boasts of 64k of RAM, much of that is used to hold the resident DOS, and BASIC. If you want to load a program which needs the space allocated by DOS, you are out luck, since your program might make DOS calls to perform disk functions. And if DOS were overwritten, when your program is finished, it must go back and load it all over again. And 6502 is not exactly the processor I would waste terribly expensive memory on, since it has a very limited instruction set, and things I take for granted now, like memory-to-memory word moves, multiplication, division, and subroutine branching would be terrible to element on an apple of commodore 64. I just don't know they have survived this long...

Our little TI, on the other hand, has a wonderful method for handling new devices. The GROM header, present on all ROM in the expansion box, and all command modules, is the link between the unknown and the known. It allows us to plug in new devices at any time in the future, and the operating system will immediately recognize the device, as if it were there from the beginning. This is what will keep our TI computers alive. The method of access is very similar to the IBM PC method. each peripheral card has a certain address in the serial

addressing fields. The operating system can turn on a card singly, look at what occupies a predefined memory area (>4000 to >5FFF for us) and can determine if the device exists. With the IBM, certain logical names are assigned to a physical device address, such as COM1:, TTY:, A:, LPT1:, and so on, and can be changed according to the user's wishes. This requires a small modification to DOS to accommodate the new device, and from then on, a new sub-version to dos is created. If the device is removed, an error will be issued - since DOS can no longer locate the installed device.

The GROM header in the TI provides a standard table for - finding a device quickly and efficiently. All of the - devices use a pre-decoded 8k block of memory, and 8k is plenty for most devices. Since we are not limited to 64k of total address space (via memory paging in the MYARC or HORIZON ram cards), larger programs may occupy that memory and give our--TI's a greater running capability. The IBM uses -- a segment register that is pre-decoded to page in banks of memory, which is essentially the same way the HRD or MYARC does it, so memory expansion is no problem. The safe area in the TI is the first ROM bank, which is the invaluable - interrupt routine and powerup routines. The SUPERCART is the only save RAM alternative for a kernel or DOS, since it is battery backed and it remembers all the changes you have made to DOS. In the CRU, the only area you could use for your own bit-twiddling is the >400to >1000 area, which is not decoded presently and could be wired to something (I - will let you imagine that). It would not be a difficult task to interface an IBM card to the TI, provided you had the correct cross-wiring, and a ROM to control the new device. A few of us in the chicago users group will attempt this. The price of IBM cards is falling like a rock, and I don't see any interfacing pitfalls.

--WP ♦



TI News / From the editor...

(aka: TI NEWS FROM YOUR EDITOR)

RAMCHARGED COMPUTERS, a TI vendor based in Cleveland, OH, has a new address and 800 number. The number for orders or questions is: 800-669-1214. The new address is:

P.O. BOX 81532
Cleveland, OH 44181

You may request a catalog and they are offering a special on the WICO Prostick II joystick. They are \$14.95 each and come with a 5 year warranty directly from Ramcharged Computers. Plus if you order two joysticks you get a free TI joystick adapter.

Delphi held a special TI Conference on the new ESD H/F Controller card in which I participated the evening of January 6th. I answered questions regarding ESD's card and explained some of their problems they have had procuring parts, answered questions, and more importantly discussed their shipping schedule (I estimate they will be shipping in 6 weeks).

Last month I mentioned the available upgrade from version 0.9 of GIFFY to version 1.0 of GIF MANIA for only \$5.00. Since then I have received my upgrade and in the upcoming months you can look for a review of this fine program. Barry's address for the upgrade is: P. O. BOX 1233, San Springs, OK 74063.

Fest West '91 will be on its way Feb. 16th and 17th. Our locally based TI software company, MS-Express Software, will be there. You will receive a full report and update at the meeting.

There is a new and interesting program out for Geneve users, but it runs on a PC not a Geneve! A new C Cross Compiler by Al Beard appeared recently and looks like it could really be a life saver for Geneve users. A Geneve version of the compiler is reported to follow shortly.

Another PC related program for the TI is called DEZIP and will unzip PC files on your TI!

A new version of Myarc's MDM5 appeared last week. Version 1.30 did not come with any text file explaining what had been changed, but this user found it to be less "buggy".

I have received many letters from individuals and user groups asking me for more info on the TI laser printer that I use to print out our camera ready copy of this newsletter. It is called a TI MicroLaser and on the street sells for under \$1000 the Post Script version is about \$800 more. TI informed me (this is very hush hush), that they will be dropping their retail price on both units by \$300 next month! For more info, flyers, and local TI vendors call TI directly at: 800-527-3500.

Members are encouraged to submit articles for publication in the West Penn 99'ers Newsletter directly to me, Chris Pratt or to Mickey at the meetings. My address:
5613 Hawthorne Street
Cheverly, MD 20785-1118
Phone #: (301) 322-6150

Please note that I will be moving soon and my address and phone number will change. Look for my new address and phone number in the next issue.

CDP

-WP♦

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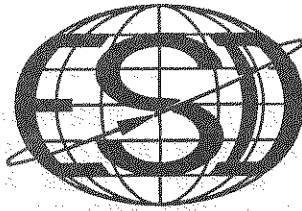
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#12

MICKEY REVISITED

Last time in NEWAGE I spent lots of time talking about Mickey Schmitt's two books (THE ADVENTURE REFERENCE GUIDE, \$9.95 + \$2 S+H from Asgard, Box 10306, Rockville, MD, 20848, and GETTING THE MOST FROM YOUR CASSETTE SYSTEM, \$9.95 + \$2.50 S+H, from the author - Mickey Schmitt, 196 Broadway Avenue, Lower Burrell, PA, 15068). In the interim, I've also written a lengthier article about the new and wonderful ways to use cassettes based upon Mickey's cassette book which appeared in REFLECTIONS. There are a couple of disks available for user groups (or individuals) who have cassettes still active. These two different chock-full disks include all the items referred to by Mickey and many others not yet mentioned by her and can be gotten for a \$3 shipping/handling fee each by asking for "Cassette Master Disk" from M.U.N.C.H., 560 Lincoln Street, P.O. Box 7193, Worcester, MA, 01605-7193; and "TI PD 1205.1 Cassette Utilities" from Tigercub, 156 Collingwood Avenue, Columbus, OH, 43213. Add an extra \$1 to Tigercub's disk request and ask for Jim Peterson's PD Catalog, the largest collection of the best of the least expensive treasures in the TI World.

If your user group hasn't yet purchased Mickey's cassette book and used it as a fund-raiser, then your group is missing a great opportunity to make some green.

Some other things have happened since I wrote that original article. Mickey has formed a new - NEW! - company of all TI stuff.

Doesn't that have a nice ring to it? A new TI company. The MS stands for the two partners: Mickey Schmitt and Mike Sealy. They can be reached at MS EXPRESS SOFTWARE, P.O. Box 498, Richmond, OH 43944. This dynamic duo made their professional debut at the Chicago Fair in November and released a pile of stuff:

ADVENTURE HINTS (Series I) by Lynn Gardner, which is unique in help concepts for adventurers. Each hint loads into the console in the same way the Adventure Module disks load. In addition to loading as standalone help, these hints can also be loaded into the specific programs and called up from a running program! These disks include built-in maps AND hardcopy maps. Nice feature. This first series includes some of the adventures written by Mickey and Lynn: OLIVER'S TWIST, RATTLESNAKE BEND, ZOOM FLUME. The same kind of two word (noun/verb) commands are used to ask for help, so there's no need to use all kinds of colored cellophane papers, special invisible ink pens, plastic decoding devices, whatever. Requires Adventure Module or interpreter.

GALACTIC EMPERORS by Eric Kepes, an Extended BASIC, multi-player, strategic simulation program. You and one, two, or three others are each trying to thwart opponents by accessing control to all the planets in the galaxy. Shades of the Darth Vader! There are decisions you and your opponents make beforehand (such as the number of planets) before the computer generates (new each time) the playing grid. Although many random events occur during the game play, the game is a mentally challenging activity that can be saved to continue play at a future date.

(Both of the above are \$9.95 + \$1 S+H and require the standard minimum configuration of one SSSD drive and 32K.)

Finally from MS EXPRESS, there are SLIDING BLOCK PUZZLES (Series I) and SLIDING BLOCK SOLUTIONS (Series I) each \$7.95 + \$1 S+H and both by Norn, an Okke, the same person who brought you the extraordinary Fairware graphic/text program "1000 WORDS," one of the very best of its kind ever.

In this case, Norman has transcended the "normal" sliding block puzzles with which we are so familiar. In the late 1800's Sam Loyd, America's most ingenious puzzle maker at the turn of the century, created the 14-15 sliding block puzzle. There are lots of these out for the TI. The best I've seen is Chris Bobbitt's Public Domain version of many years ago and in all group libraries.

These puzzles, however, are considerably more challenging than the originals. There are three on this disk and all can be saved in mid-game, so one doesn't have to begin all over again.

The first consists of nine different-colored tiles and supposedly can be solved in 59 moves. Puzzle #2 is made up of 10 blocks and could be completed in 81 moves. The hardest (#3 of course) has 11 tiles to shift and can be solved in 90 moves. A colored monitor or TV to go with your XB, 32K, and minimum disk drive system are required.

You need the these puzzles before you get the solutions' disk, which provides the help you need for each puzzle in little pieces so as not to ruin the game for you. Very user-friendly, like all things Norman does. And, of course, ingenuity by him is taken for granted.

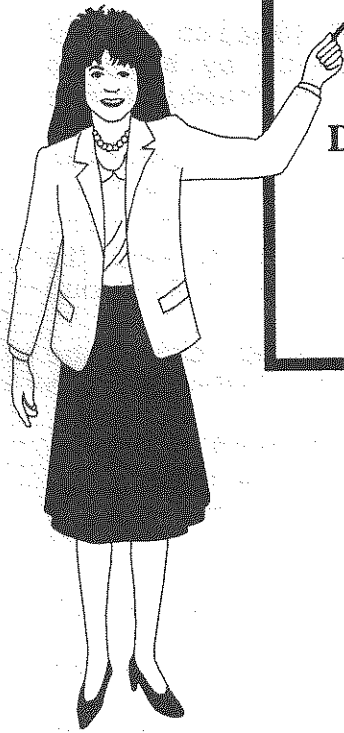
Now that we have a new company supporting TIers, let's hope the TI Community supports the new company. Your support will encourage even more authors to stay with and write for the 99.

I continue to get letters from cribbage buffs all over the TI World asking about a program I reviewed last year. The program is written by Gene Hitz. He even rewrote it after I gleefully stated how I found a way to cheat on the "Go". He chastised me for cheating our little 99 computer. Now, the computer catches me each time when I try. This program is called "Cutthroat Cribbage" and gives you a muggins if you count incorrectly. It's fun to play and is fast and friendly. The game can be purchased for \$7 from ARCADE ACTION, Program Innovators, 412 Glenway, Wawatosa, WI 53222. Actually, for \$10 you get a diskful of games, including a nice version of TETRIS and piles of others. If you are a cribbage player, I'd recommend this game highly. If you'd like to learn the game, ask for the longer version (though I think he sends both versions, anyway), because this will give you the option to have the computer count up any combinations to see how things are scored. Then get yourself a HOYLE's from the library and play your TI until you got the game down pat. Excellent midnight companion.

Besides TIGERCUB's \$1 catalog of Public Domain disks (truly the BEST BUY in the TI World), everyone should send off for Asgard's newest catalog. Asgard's latest, particularly for Page Pro owners, is a mouth-watering collection of delectable delights. For game players, William Reiss's TOURNAMENT SOLITAIRE (which includes - along with KLONDIKE - PYRAMID, GOLF, COMERS, PILE-UP, CANFIELD, and CALCULATION) is terrific. But call or write for the free catalog and notice the high level of your droolability.

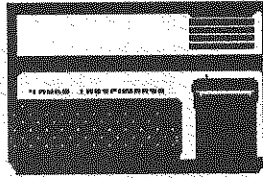
[If you use NEW-AGE/99 please put me on your exchange list.]

-WP♦



The February West Penn Meeting
is Tuesday the 19th!

Don't miss out on the TI-99/4A SIGs!



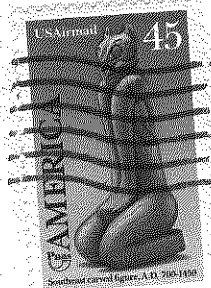
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