West Penn 99'ers

Supporting the TI-99/4A Home Computer

Established 1985

ISSUE #86 **October 1992**

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FOR THE RECORD

By: Frank N. Zic

Mickey started the September meeting promptly at 7:15 PM. First order of business as usual was to give thanks to Chris Pratt for his donation of two TI instruction books for the raffle. Comments were made, as to the clubs status, by the following; Norm Rokke, Lynn Gardner, Bob Sadusky, Paul Brock, Art Gardner and myself. It was noted that a club equipment inventory will be taken at the end of the year. Don't forget to look at the regular disk library and the module and cassette libraries. I mentioned that I have many modules and the instruction books, if they are needed, just ask. John Willforth was with us and said that in the months ahead he would bring in some excess TI equipment. Some larger items will be raffled and the smaller items can be picked over free. John made our meeting more enjoyable with his comments. And by the way, wasn't Mickey in great humor. You guys and gals are missing some really nice meeting. Tapes were re-distributed of the Lima Faire. It was noted that Mickey DID NOT bring in the rest of her wedding pictures.

It was nice to see Judy Muir come to the meeting. We appreciate your effort in making the trip. We pray you will feel better soon. Keep trying. Our sympathies go out to Ray Brondner on the sudden passing of his Wife. Maybe John Vukman can convince Ray to come to a meeting, it may help to re-kindle his spirits just a bit to meet with his old friends. Judy mentioned the Atari club was having a general computer fest on Dec.6,92 at the Circleville fire hall from 10-4. We also may have a table there.

We thank all the club members for buying their TI supplies from the club. One really nice offering is 25 disks for $10. Many nicely priced disk cases are available too. Some important club business was held. This being the nomination of officers to lead us next year. All present officers accepted to run again. Slight reservations were offered by Bob and myself. So if anyone wants to try either of our positions, you are welcome. Floor nominations will be accepted in October, with elections in November. Next we had demos by Mickey on Fonts && Borders by Ken Gilliland of Notung fame. Then Norm showed us Diablo. BTW, next month we will resume the highlighting of MICROpendium articles but with the selections being made by Norm Rokke. The final event of the evening was to have the raffle. Prizes were a $5 club gift certificate, disk holder, Fonts && Borders and two books. Two people won that weren't even there at the time. How can this happen you ask, well, Rob and Joe Ekl had to leave early and gave their tickets to Art for safe keeping and sure enough they both won. Rob even waited to buy his ticket at a precise time. What can you say, when Ya got it, Ya got it.

May the good 4's be with you.

WEST PENN 99'ERS CLUB INFORMATION

NEXT MEETING DATE

OCTOBER 20, 1992
7:00 P.M.

MEETING LOCATION

PENNS WOODS
CIVIC ASSOCIATION

JUST OFF ROUTE 30
N. HUNTINGDON, PA

LIST OF WEST PENN OFFICERS FOR 1992

PRESIDENT:	Mickey	412-265-5201
VICE PRESIDENT:	Norm	614-264-6442
TREASURER:	Lynn	412-835-4304
RECORDING SEC:	Frank	412-751-6065
CORRESPONDING SEC:	Paul	412-478-2754
LIBRARIAN:	Bob	412-863-5672
NEWSLETTER EDITOR:	Chris	703-415-3964

GENERAL ITINERARY OF THE CLUB'S MEETING

6:45 P.M.	DOORS OPEN
7:00 P.M.	GENERAL MEETING
7:45 P.M.	DEMOS AND NEW INFO
9:45 P.M.	ONE ON ONE HELP
9:45 P.M.	SOCIALIZING
11:00 P.M.	DOORS CLOSE

MEETING HIGHLIGHTS FOR THIS MONTH

* LATEST T.I. NEWS AND SOFTWARE DISCOUNTS
* NOMINATIONS FOR CLUB OFFICERS FOR 1993
* SPECIAL CLUB OFFER - MORE TIPS PICTURES
* MORE T.I. SCREEN DUMPS - DEMO BY MICKEY
* » SURPRISE DEMO BY ONE OF OUR MEMBERS «
* »» PRODUCTS FROM MS EXPRESS SOFTWARE ««

RENEW YOUR MEMBERSHIP DUES!

$15.00 PER YEAR FOR INDIVIDUAL / FAMILY
$10.00 PER YEAR FOR ONLY OUR NEWSLETTER

From the Editor...

Sad news was received tonight of the passing of Judy Muir. Judy was a long time member of the West Penn 99'ers and for the last couple of years assisted in the preparation and mailing of the newsletter. Judy was always a contributing member of the West Penn group. She will be missed at the monthly meetings where she always participated in the discussions.

I apologize for the lateness of this issue of the newsletter. Perhaps I have become over burdened with commitments. Since nominations are being taken at the next meeting. Perhaps a discussion can take place as to who your new editor will be for 1993. I have served two years as editor and I feel it is time to pass the responsibility on to another volunteer. I would be more than happy to discuss what is involved with anyone. If our club could pull off a long distance relationship like this one, our members can do anything.

CDP

--WP♦

THE FEW...
THE PROUD...
THE SOMEBODY

BE A SOMEBODY... VOLUNTEER NOW!

THE WEST PENN 99ERS NEEDS YOU

JUDY ST. PETER

WHERE DO COMPUTER CLUBS MEET UP HERE?

IN TRIBUTE OF OUR FRIEND JUDY

BY DR. PATRICK F. MUIR

Judith Ann Rusher Muir

Founder of Mid-Mon Valley Computer Club

Judith Ann Rusher Muir, 51, of Carroll Township, died Wednesday, September 23, 1992, in Jefferson Hospital, Pittsburgh.

She was born November 20, 1940, in Latrobe, a daughter of Lewis Glenn and Mabel Lucinda Noel Rusher.

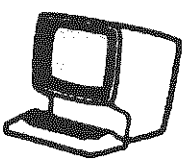
Mrs. Muir attended First United Methodist Church in Donora.

She was a tailor at Pat Baker Inc. of Donora.

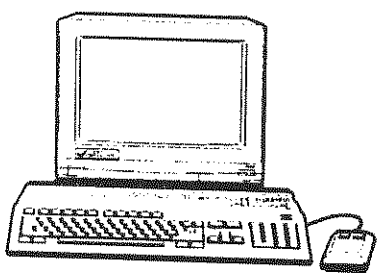
Mrs. Muir founded and organized the Mid-Mon Valley Computer Club.

She was a member of various computer clubs in Western Pennsylvania and West Virgina, and a member of the Orchid Society of Western Pennsylvania.

Surviving, in addition to her parents, are one son, Patrick Fred Muir of Murraysville; one daughter, Susan Mary Muir Sansonetti of New Alexandria; a brother, Byron Alford Rusher of Blairsville; and two grandchildren.



She made her home with a companion, Ralph Vasko.



Judy Rusher Muir

The following is a transcription of several memorable moments recounted by Judy's close immediate family and friends.

Judith Ann Rusher was born on November 20, 1940 to Glenn and Mabel Rusher of Derry, Pennsylvania. Glenn worked as a presser at the Westinghouse plant in Derry and later worked his way up to Assistant Manufacturing Engineer. Mabel was a homemaker and would later work as a clerk and tagger in Latrobe, Pennsylvania.

Mabel would take Judy grocery shopping. Judy loved to play with the owner's cat at a local store. Mabel would leave Judy to play with the cat while she would do the family shopping. At home one day, Judy was missing. She could not be found anywhere near home. Thinking on this a while, Glenn left in the car to look for her. He found Judy back at the grocery store playing with the kitten. The store was five blocks from home with several turns. In order for Judy to get there, she must have crossed the street at two locations during the heavy dinner traffic and crossed a rickety wooden bridge over the railroad tracks - quite an adventure for a four year old girl.

Judy had a special fondness for her grandfather Frederick Rusher, a white-haired brakeman for the railroad. Whenever he would see Judy, he would pick her up and hold her in his lap. Even though Frederick passed on when Judy was only fourteen, this early relationship would prove to be influential in Judy's adult life when she acquired a fondness for railroads. Recently, Judy has stated that she was happy that she would be going to heaven where she could meet her grandfather again. Before her death, Judy made arrangements to be buried beside his resting place.

Judy was in the school band for several years. She played saxophone, but did especially well with the clarinet and became first clarinet. She was chosen to play in both the district and the county bands. She would travel with the band to nearby towns to play at football and basketball games.

At the age of seven, her brother Byron was born. In Byron's younger years, Judy would look after him when both parents were at work. On one occasion, she was faced with a tense situation. Byron had climbed a tree and fallen from it head first onto a stone patio. He was dazed and staggering. Judy, though scared, called her mother and took her advice about how to handle the situation. Her brother came through the ordeal with her help.

Judy was fond of following her father to his workbench in the basement. Her father would give her some wooden blocks to play with, and she would keep herself busy with them while he worked.

Judy made good grades in school. She excelled particularly in Math and Science. It is no coincidence that much later her son would follow her lead and enjoy these same subjects. She had a very encouraging Math teacher in high school. "He was quite a character" recounts Glenn. He did so well teaching Judy that Glenn requested that Byron be placed in his class to receive the same encouragement. Up to that point, Glenn and this teacher were both involved in the Derry council and had never agreed upon anything.

Judy talked about studying music in college. However, upon graduating from high school, she decided to wait a year to think it over. During this time, Judy acquired new interests. She took a job with Toyad (a company producing rubber products) working in their laboratory. Judy took up roller skating and purchased a pair of skates by talking the store clerk into accepting a downpayment and regular installment payments because she didn't have enough money to buy them at that time. She enrolled in a drafting course. Like many young women of her time, she liked to listen to Elvis Presley. Judy attended the Alliance Church in Blairsville, Pennsylvania.

Judy took a sudden liking to sewing and purchased a Kenmore sewing machine from Sears. At first she was disappointed because the machine's operation didn't match the instructions. Together with her father, they were able to determine that a dial was mis-adjusted so that one setting on the dial produced the results that the next setting should have. The problem was resolved, and she began sewing. This skill would prove to be a focus of her entire lifetime. She utilized the same sewing machine for all of her remaining years.

Young Byron would tag-along when Judy brought dates home. She would later recount how annoyed she was at her little brother for doing this. At Cicero's roller rink in Blairsville, Judy met her future spouse. They were married soon after and Judy Rusher became Judy Muir.

At the age of 19, she had a son Patrick Fred; and two years later, she had her daughter Susan Mary. The young couple lived with her parents for a few years, then moved to a small town outside of Forbes Road, Pennsylvania where they rented half of an old house. The town was called "Number 6" just as it had been back when it was built to house the workers of the #6 coal mine. The residents considered themselves as part of Forbes Road because this was the nearest town with a post office.

Judy joined the Forbes Road Union Church and became a leader in its operation. She taught Sunday School and Summer Bible School and became the church superintendent. At times when the church was between pastors, she would fill in and conduct the services herself. She played the piano and liked to sing in church. When the congregation needed a leading voice, she would single melody. She was fond of singing harmony (she was an alto) on the days when the congregation was holding its own with the melody. Judy encouraged both children to attend church regularly even when on vacation. She would see to it that the children obtained visitor's cards from other churches when they could not attend the Forbes Road Church so that they could maintain their good attendance record.

Judy liked gardening. Every year, she planted a vegetable garden measuring some 40 feet on a side with corn, tomatos, potatoes, sunflowers, strawberries, parsley, green peppers, peas, carrots and more. During peak harvesting days, she would bring the ripe tomatos to the house in a wheelbarrow. Many of the neighbors received bags of vegetables from her garden as gifts. She saved egg shells and other kitchen scraps to make a compost pile for the garden. She also had flower gardens next to the house and in the yard. She was an avid reader and much of her gardening knowledge was extracted from books and magazine articles. She loved nature. She often chose to drive on the small wood-lined country roads instead of using quicker routes on the highways.

Judy took a particular liking to a wooden rocking/swivel chair. She saved for quite a while, and finally purchased the chair. Both children vividly recall a one day trip they took with Judy to Niagara Falls. The family would regularly take a summer vacation camping at Kinzua Lake. During one such vacation, Judy drove the kids across the border to the Canadian side of Niagara Falls. The highlight of the trip was the walk into the underground caves which allow close viewing of the falls. They used the provided tourist raincoats to avoid from getting soaked. The threesome thoroughly enjoyed the adventure.

Judy became an expert with her sewing machine. She was fond of designing and sewing Halloween costumes for her children each year. Her Raggity Ann and Raggity Andy and Pirate costumes won awards in Halloween parades. She made several articles of clothing for herself and her family and was continually fixing old clothes for further wear. She also made curtains and other cloth items and reupholstered the livingroom chairs by herself. She brought in extra money for the family by sewing clothes for the neighbors. Once the word got around, she had several requests for work. She designed and sewed the wedding gown and dresses for all of the women in a friend's wedding. When Pat was organizing the construction of a 25 foot tall teepee for his college fraternity for Spring Carnival, she sewed the cloth exterior. She taught Susie how to sew and gave Susie her first sewing box.

Susie recounts that her most memorable Christmas was one when the family had little to spend. Judy had made Susie a set of furniture for her Barbie doll. This included the wooden and sewn cloth pieces. Judy always insisted upon a live Christmas tree because the fake trees didn't have the Christmas smell. Decorating the tree each year with the family was a special occasion.

Cooking was not one of Judy's strong points. She often took a ribbing from family members for consistently overcooking the meat for dinner. Judy always enjoyed drinking coffee.

Judy encouraged her children in many ways. She would try to teach them to play the piano. She saw to it that they got rides to extracurricular activities such as cub scouts, track practice, brownies and majorette practice. Whenever her children needed something to continue their activities, she was quick to help out. Pat recounts how she often had helped him to study in grade school.

Around the age of 40, Judy and her husband were divorced. Overall, the marriage had not been a happy one. She enrolled in a programming course to learn computer numerical control (CNC). She enjoyed working with computers,

but found no local opportunities after completing the course. She utilized her talents with her sewing machine and worked as a tailor for 3 different establishments in the ensuing years. She got her first tailor job in Greensburg, Pennsylvania when she showed a coat that she had made to the owner of the shop. Her finishing seam was so well done that the owner could not determine how she had sewn it. Judy explained her methods to the tailor and got the job.

She met Ralph Vasko during an evening of rollerskating. Judy spent the last ten years of her life with Ralph in Donora, Pennsylvania. To Judy, these were the best years of her life. They shared interests in computers and trains. They also enjoyed square dancing together.

Judy liked the small town atmosphere of Donora. Here she encouraged a local shoe store owner to focus upon clothes alterations in the business. Judy was hired to help, and together they built the business up to the point that the shoe section was nearly eliminated. Judy was proud of this and was happy to be invited to attend a local fashion show. She took Susie to the show with her and was eager to share her experience.

Because there was no local computer group, in 1989, Judy founded the Mid Mon Computer Club which still exists. She publicized the idea in the newspaper and had endorsements from a local Radio Shack where fliers for the club were passed out. At the first meeting 23 people attended. Judy held a leading position in the club; her specialty being the Timex Sinclair computer. Judy and Ralph would attend national computer conferences. She built her own small computer from parts of a commercial Timex Sinclair. It was small and light enough to be carried like a purse, so she called it the "Timex Take-along". A reporter who saw the homemade computer at a conference published an article on her and her computer in Computer Trader Magazine (CTM), a national publication. She was invited and gave a talk on computers in Washington DC at a national conference. An article in the Pittsburgh Post Gazette South about PC clubs featured Judy because of her affiliation with more than 15 local computer clubs.

Judy's interests in gardening continued. She had always had a special liking for cacti, but had grown to love Orchids even more. She was a member of the Orchid Society of Western Pennsylvania and kept a collection of some 50 orchards. She continued to plant vegetable and flower gardens and even acquired some small pools for water and fish. Judy and a small group of friends enjoyed driving to out-of-the-way places to collect wild flowers. She was also fond of music boxes. Judy and Ralph would use their vacations to travel to flower shows and railroad museums in neighboring states and Canada. She helped Ralph to publish the newsletter for the Mid Mon Model Railroad Club with their computers. Together, Ralph and Judy were well known in the Donora area, especially at several local restaurants that they frequented.

Common throughout Judy's varied activities was her Christian faith. She was an avid church goer and loved to listen to Kathryn Kuhlman. Reverend Joel Wilchire of the Donora Methodist Church was new to the church when Judy asked him to visit. The Reverend agreed, thinking that this was to be an 'interview' of the new minister. In their conversations, he learned of Judy's deep Christian beliefs. Judy concluded "You'll do" and she asked him to speak at her eulogy when the time came.

Judy was diagnosed with cancer at age 49. She lived her life to the fullest, looking at each day as a gift, and each good day as icing on the cake. She visited with her son in New Mexico where he had moved after graduating with a PhD in Electrical and Computer Engineering. During one trip, she was determined to reach an ancient indian ceremonial cave which was some five stories up a canyon wall at a national park. The only means of access was several ladders made of wooden logs which spanned the distance from ground level up to the cave. She climbed slowly, but made it to the top, and was proud to have achieved her goal.

Judy was one of only five people who witnessed her son's wedding in New Mexico; the others were the groom, the bride Elizabeth, the father of the bride and the pastor. She traveled with this group some 500 miles into Mexico to attend a second wedding at the bride's home. Judy was advised by friends not to make the trip because of her health and the conditions along the way. She was happy to have gone, and later was heard to say that the reason that she was smiling in the pictures that were taken on this trip was because she found out that the bride's family was Christian.

Judy cherished her two grandchildren: Susie's son Eric and daughter Megan. She would have liked to take them to the zoo and watch them open presents on Christmas morning. However, her health was failing her. After more than two years of fighting with cancer and chemo-therapy, she passed away peacefully on September 23, 1992 in Jefferson Hospital in Pittsburgh.

WEST PENN 99 ERS

The following information comes from Disk #1 of the CIN-DAY Users group.

IF I WERE ANDY ROONEY

By Art Byers - CW 99'ers

Did you ever notice how many little dumb mistakes the manufacturers of computer accessories make? Now you'd think that folks who work around smart computers would be smart themselves, wouldn't you? - But they're not and let me give you a few examples.

How come when you buy one of those little plastic boxes with a hinged lid that holds 50 disks or so, they only give you four dividers.? What makes them think we can fit everything in our collection into only four categories? Why I use the last one, at the back of the box, just for blank formated disks. So I start out with just three empty spaces for everything else. If We are supposed to separate word processor files from utility programs and those from data base files and those from games, how can we do it? AND we have not even mentioned telecommunication software

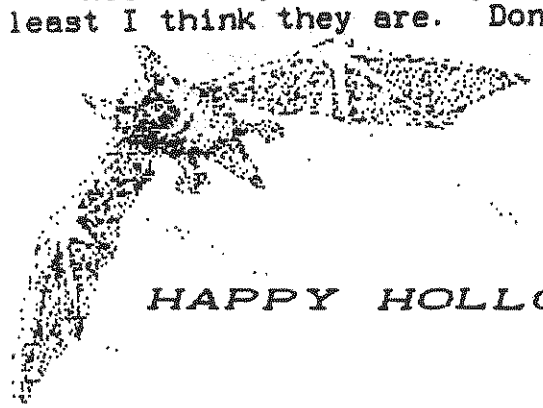
Plastic dividers can't cost more than a few cents each and the box costs over $10. Surely they could have given us six or seven separators. Have you ever wondered how come the manufacturers are so cheap? Have you?

And another thing! Why is it that pin fed computer paper that is supposed to come apart with a clean edge, always comes apart when you don't want it to?? like when you're trying to put it into your printer or in the middle of printing out a long important letter and everything is a mess? If you use the other kind that leaves little fuzzy bumps on the edges of the paper when you take off the edges with the holes in them, do you notice how half the time you tear a page in half when you take it out of the printer. Why is that? You'd think the paper industry would have done something about that, wouldn't you?

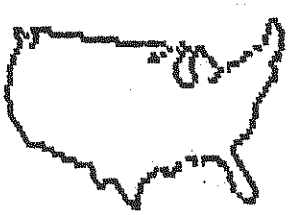
Do you ever think about how the computer magazines litter up your floor with those little postcards selling subscriptions? Two or three drop out of every issue. Now they've glued another three inside so they don't really need the loose ones.

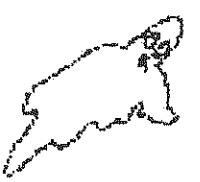
I'm usually sitting in an easy chair reading and one of those cards flutters out about five feet away and I've got to get up and put it in a waste basket before my wife comes in and says something. Then after I'm seated and comfortable, another card flutters out and drops out of reach? Does this happen to you? Of course it does!

All this just shows you how dumb the computer industry is. Or at least I think they are. Don't you?



HAPPY HOLLOWEEN





Made in U.S.A.

Future Developments: The opinions of one 99/4A developer

By Chris Bobbitt

OVERVIEW

With the apparent final demise of Myarc, and most likely the Geneve with it (not-withstanding the efforts of those trying to salvage the remains), the TI community is at an impasse.

For the last 6-7 years a substantial portion of the software and hardware developers among us have been focusing on the Geneve. While some interesting work has been done, the frustrations in developing for the machine has driven more developers out of the community than anything since the 99/4A was discontinued. The Geneve is the only computer that could make what little TI published about the 99/4A look like an embarrassment of riches.

In fact, considering how everything turned out (the intentions and hopes of all parties involved aside, including myself), I would say the Geneve was probably the worst thing that could have happened to the TI-99/4A. It siphoned off developers who would otherwise have worked on addressing the shortcomings of the 99/4A itself. The Geneve itself was a radical answer to those same shortcomings, and the fact that it was a total solution in one neat package goes a long way towards explaining the efforts and passions it inspired.

However, any reasonable assessment of the situation would conclude that it is too late to make lemonade out of this lemon. Even if the machine were readily available today, we would be addressing ITS shortcomings by now. In 1985 512K of RAM and 128K of Video RAM was still something to talk about. But today, the capabilities of the machine are about as relevant to current computing requirements as the IBM PCjr, Atari 520ST or Amiga 1000. Further, the basic problems with the Geneve's design would insure that the task of updating the machine would be just as great as that of updating the 99/4A.

While I am not trying to discourage all of the developers who have spent years working on the machine and in some cases are still at it, the simple fact of the matter is that the window of opportunity for it has long been shut. The Geneve just can't compete against the 80386 and 68030 computers of the world, much less computers using the 80486, 68040 and RISC processors.

ASSESSING THE 99/4A

The basic problems with the TI-99/4A have been discussed to death, but its important to restate the obvious sometimes.

1. Memory

The 99/4A never had enough of it. There probably isn't a single PC program available today that will fit in 32K (or even the 40K available with a Supercart).

Granted, we've gotten a lot of mileage out of virtual memory techniques, the 9900 processor's more efficient use of memory, and programming in straight assembly. But the fact of the matter is we are quickly coming to the end of the road on that. Who would use a virtual-memory word processor that had to go to disk to get a bit of code every time you did a search and replace? Putting all of the features people expect from modern software, not to mention modern graphical user interfaces, in 99/4A programs is very difficult to impossible with current memory constraints.

Oh, people can still write games and utilities and some types of application programs, but when is the last time that a major new application (like TI-Base or Page Pro 99) has been released? How can someone improve much on those programs when they've run out of memory and can't make the program any smaller? As programs for PCs and Macs improve they inevitably get larger and larger because developers are loath to remove features found in previous versions. Hence, programs like WordPerfect that have been through 5 major revisions have everything but the kitchen sink, and 1200 page manuals to prove it.

Developing software for the 99/4A has always been about tradeoffs, but you eventually get to a point where the tradeoffs cost too much, and so new software development stops. We are about at that point with 99/4A software. Without more memory we will not see any more advances in databases, spreadsheets or desktop publishing, much less newer applications like computer faxing.

2. Speed

The 99/4A is slow, especially by today's standards. Personal computers that perform 20 million instructions per second are found on the desks of secretaries. The 99/4A can just about manage 1/100th of that. The only thing that has kept the 99/4A competitive for so long is that the vast majority of the power is wasted on PCs and Macs by abominable software that needs 32K of code to read the keyboard.

The proliferation of graphical user interfaces (GUI) has put a premium on speed like nothing before in the PC world. While Mac users have been enjoying their benefits for years, the PC world has only recently awakened to the fact that they go a long way towards making PCs less user-hostile (one of the big things that kept people using the 99/4A for so long). While Windows is still a pile of you-know-what compared to (say) the NeXT or the Mac interface, it almost makes the PC as intuitive to use as a circa 1979 TI-99/4A.

To keep up with the Jones' a GUI for the 99/4A is inevitable. However, to produce a practical GUI for the 99/4A you'll need more speed and a lot more memory. Please note that the latter goes quite a bit of the way towards mitigating the lack of the former because effective speed is still sometimes more a product of logical design and efficiency than raw power. However, all programs (especially efficient ones) benefit from increased speed.

3. Video

Of all the areas that we have tried to keep up with other machines, video display has probably been one of our more successful attempts. Despite occasional supply problems, since the mid-80's we've had a steady stream of new video products first based on the 9938 and more recently the 9958. We've been extremely fortunate that the video processor line used in the 99/4A found a wider commercial following than the 9900 itself did.

However, this is not to say there isn't room for improvement. Desktop publishing, GUIs and more advanced applications like Multimedia and Desktop Video make the 9938/58 adequate at best. Despite the fact that the improved resolution offered by these processors is still largely unexploited, within a couple of years it will seem as antiquated as, well, the 9918a.

However, the interest in advanced video that exists today is enough to insure that we will see continued products using 9990s and perhaps even 34000 series processors. However, there is no point in tying a state-of-the-art video system to the 99/4A if there isn't enough CPU RAM to hold a single screen of data (there isn't even enough now with the 9938).

4. Sound and Speech

This is one of the least painful shortcomings of the 4A because compared to much of the opposition, we STILL have competitive sound and speech capabilities.

There is nothing like our speech system available in the PC or Mac world today which relies on hideously inefficient digitizing to achieve comparable sound quality (10 seconds of digitized speech can take 1000 times more storage than 10 seconds of speech from our synthesizer). While our sound system has aged less gracefully (it was second-best even to the Commodore 64), the 99/4A still sounds better than many PCs sold today. However, Desktop Video and Multimedia - granted both cutting edge applications that won't be widespread for a while yet - both require tremendously enhanced sound and speech capabilities. The emergence of these applications has also started to drive PC developers to improve sound and speech on the PC - its a safe bet that in the next year or two virtually every PC sold will have a Sound Blaster-like sound board as standard equipment (the Mac always had it).

Any expansion of sound and speech technology for the 99/4A will require an increase in memory and probably speed - especially if it includes input of speech and sound as well as output. As with advanced video, there is no point to improving sound and speech capabilities if you have no place to put this type of data, or you can't get the data to the

hardware fast enough.

5. Storage

As with video, the 99/4A development community has tried hard to keep up with the latest in storage technology. This has been as much out of necessity as virtue - because of the limited RAM of the 99/4A the only way to increase the functionality of 99/4A programs has been to use disk space as program storage space (virtual memory).

The HFDC brought the 99/4A up to the level of an IBM AT, and the promised IDE and SCSI controllers would bring the 99/4A into the modern age - on par with the latest from the clone makers and Apple. The SCSI controller, in particular, would give the 99/4A access to the wide range of storage peripherals outside of disk drives - CD-ROM players, tape-backup units and so forth.

While increased storage is always useful, it won't permit any new types of software application development, however, beyond what we can do already do today with the HFDC, RAM-disks and the like. However, speedier storage WILL make living with virtual memory techniques a lot easier. If it only takes a half-second for the "search and replace" function to load off of your SCSI hard disk, then you can probably live with a virtual- memory word processor.

6. Input/Output Devices

Along with storage and video, the variety of input and output devices has for the most part kept up with technology. You can attach the latest printers and serial mice to the 99/4A as easily as you can with a PC. We can thank the fact the we were fortunate TI supplied us with standard RS232 and Centronics-compatible Parallel ports for this (not necessarily a given with older computers).

There is, of course, always room for improvement. Many PCs nowadays sport second-generation parallel ports that can handle much higher speeds and two-way communications, and Apple Macs have featured the RS422 interface for years and years (which also works faster). Further, our serial interface is not quite compatible with some applications. MIDI has pushed the 99/4A to the limit in this respect - the technical problems related to properly exploiting this technology are great because of shortcomings with the interface.

Also, as with improving most other aspects of the 4A, an improvement in memory is also important to optimize improvement in input/output devices. Additional memory would permit better buffering of data (which would facilitate faster 1/0), and make supporting MIDI a lot easier.

SUMMARY

As it stands the 99/4A could stand major improvement in memory and speed, and substantial improvements in storage, and modest increases in speech and sound, video and 1/0.

This isn't meant to indict the 99/4A - the machine will still be useful for years to come. But lack of improvement in these areas will mean that TI-99/4A applications will seem ever more and more primitive by comparison with what can be done on other computers. Without improvement it will be impossible to even contemplate many up-to-date applications.

PRESCRIPTIONS

While the situation is not good, it is far from hopeless. Despite the thinning of the ranks caused in part by the Geneve, there still exists a dedicated group of people interested in developing new hardware and software for the 99/4A. Chances are any substantial improvement in what the 99/4A can do will bring more of these people out of the woodwork as it did in the past with the introduction of GRAM devices, higher capacity drives, new programming languages, and so forth.

Lately small groups of individuals have tried to help solve the problem by defining it better in conferences and meetings. The best known of these efforts is the 99/4A Standards discussions that have been held on various electronic networks and at TI conventions.

1. Memory

The 99/4A Standards committee (the NTISC) has evolved into a general discussion on addressing the memory shortcomings of the 99/4A - essentially by defining common protocols for accessing these types of devices (physically and through software). While there is a lot of utility in such discussions, I also have some concerns about them. I believe that in the short run they unnecessarily raise expectations; the great disparity in the way currently available memory devices work will make what they are trying to do very complex; and, actually developing devices and software to pre-designed specifications sometimes points out inadequacies in the specifications more than anything else. In this way they can be counter-productive.

Further, trying to write software that interfaces to a wide variety of memory devices promises to be most difficult. Optimizing a program to work with a variety of different page sizes and interfacing methods, even smoothed over by common access routines, may be impossible. One program we worked on at one time, Press, became impossible to complete on this point alone.

The best way to promote a standard memory device for the 99/4A is to let the community vote with its dollars. The most popular memory device becomes the de facto standard. If there are shortcomings in products that are currently available, anyone who makes a better one can probably sell a lot of them if they address those shortcomings.

This isn't to say that a standards committee can't help the matter along. While it may be impossible to set a standard access method for currently existing memory devices, a standards committee could certainly design an "ideal" memory system that addresses the problems with current systems. This design could then be licensed to multiple vendors - better to insure steady supply and price competition.

2. Speed

Speed is a much harder commodity to come by. The only really compatible speed improvement currently available is to increase the clock speed. While this improves speed up to 30% or so, even this causes problems with some programs.

Recent efforts in this area (besides the Geneve) include a 99105 based daughter-board that would plug into where the 99/4A's CPU currently resides. While this would certainly meet the need for speed, it has evidently hit a stone-wall during development.

A better long-term answer may be to simply replace the entire motherboard - in essence what Myarc did with the Geneve. While this would probably be more costly than a daughterboard, the technical problems might actually be less - particularly if the designers put all of the common peripheral ports on the motherboard and didn't worry about access to the P-Box.

The cost of such a thing would certainly be an issue, particularly if the designer used one of the few remaining available 9900 compatible processors. A 99105 costs around $225 EACH in quantity (making the COST of a full-blown system built around it $500-1000 depending on the components and peripherals included).

The designer of such a system may want to consider using another microprocessor and emulating the 9900. The upside to this is the cost per processor may go down dramatically. The downside is the technical problem of emulating a 9900, and potential compatibility problems that may result from a buggy emulation. Of course any emulation done depends on the microprocessor that is running your emulation - and it may be easiest to do a 9900 emulation with the new TI SPARC chips or the TI 34020. These chips have a few 9900 genes floating around in them and have enough raw speed to make a emulator that is 20 times faster than the original. Of all the problems facing the 99/4A, the speed problem is probably the hardest.

3. Video

Hold the course! More 99/4A software is becoming 80-column aware all of the time. If only we could convince more people to buy the upgrade - that would insure both a steadier supply and future development of both high-resolution software and hardware.

4. Sound and Speech

There have been several efforts to improve both of these things on the 99/4A - ironically both by TI.

The MBX system is STILL just as good or better than the typical speech recognition device for the PCs and Macs, and TI speech synthesis technology is peerless. It is rumored that TI has also married the two with speech recognition devices that interpret the spoken word into the Linear Predictive Coding system used by TI synthesizers (including our own Speech Synthesizer). A board built around this technology would be on the cutting edge for all computers!

Also, TI reportedly was behind the design for the FORTI music card, which expanded our system to 12 voices with stereo output.

All we would need to bring the 99/4A into modern times would be a Sound Blaster for the 99/4A with an expanded version of the speech technology we already use.

5. Storage

This area promises to be one of the first addressed, particular if the new IDE and SCSI hard disk controllers are ever released. Both IDE and SCSI offer enough speed and capacity to meet the 99/4A's storage needs for years to come. They could also facilitate cutting edge applications like multimedia, and current hot topics such as GUIs, desktop-publishing and so forth.

6. Input/Output

The only thing the 99/4A needs is a device offering 1-2 true Centronics parallel ports and 2-4 improved RS232 ports. With the former it may be possible to attach all of those peripherals designed to work on a parallel port that are available for the PC. With an improved version of the latter, some of the technical problems of MIDI would be solved.

CONCLUSIONS

The 99/4A has come a long way in the 13 or so years since its first incarnation as the 99/4. It is reliable, useful and addictive. However, if it is to become more useful, and stay as challenging and addictive, it is going to have to be improved.

My purpose in writing this was not to deride the 4A, and certainly not to offend anyone in the past or present who was/is working towards the common goal of improving the machine. Everyone's effort in this respect has been invaluable to the cause. I also didn't write this to quibble with anyone's approach to the problems at hand. While I disagree with some aspects of the NTISC, as a programmer I can certainly empathize with their aims.

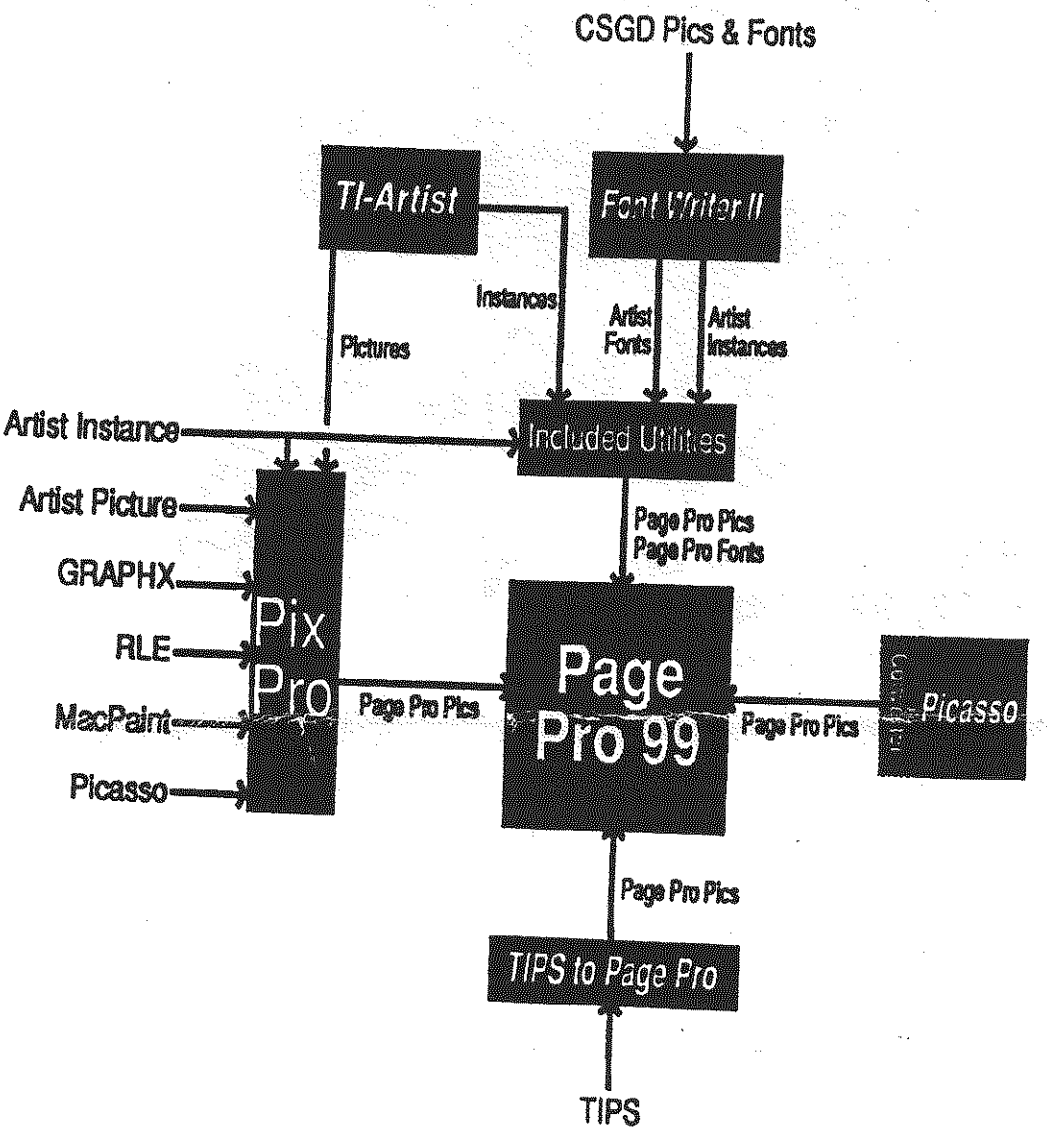
The point of this article was to ask a few question of myself and others - "What's wrong with what we have now?", "What can be done to correct what's wrong?" and "What hardware would I like to write programs for?". I look forward to reading other answers to these questions.

Please send all comments to:

Chris Bobbitt
c/o Asgard Software
P.O.Box 10306
Rockville, MD 20849-0306

--WP♦

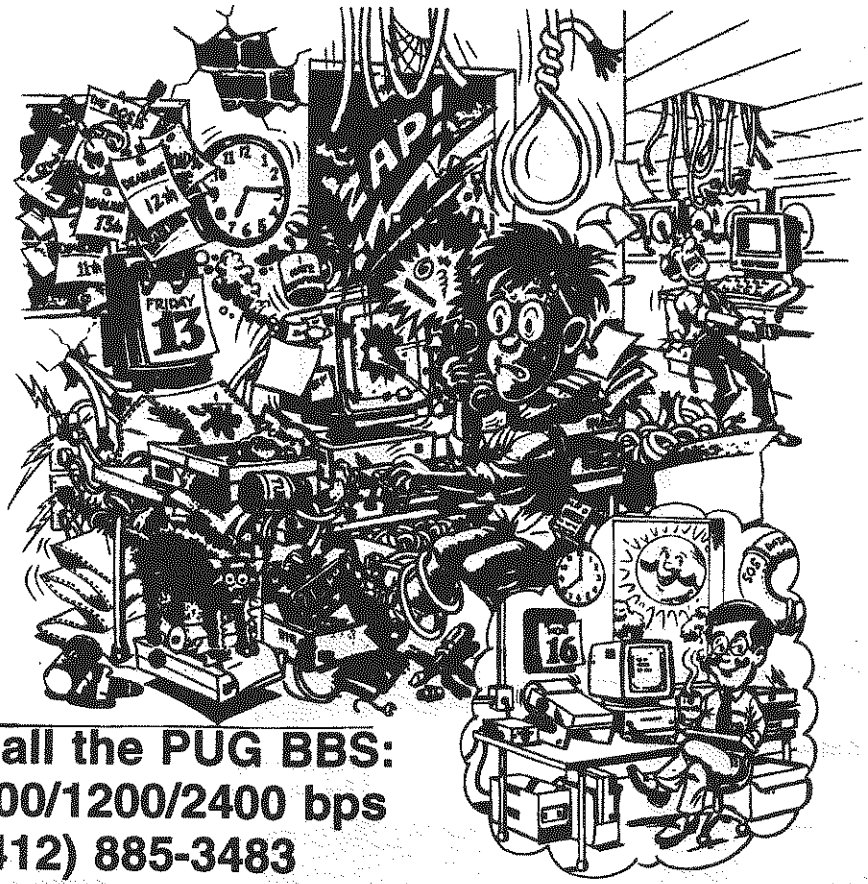
Page Pro Connectivity Chart



Page Pro Connectivity

Note: This chart illustrates the various popular file formats found on the TI-99/4A, and the utilities necessary to get them into Page Pro 99 format.

Communication Problems?



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F 921231
MICKEY CENDROWSKI
RD1 BOX 133
RUSSELTON PA 15076