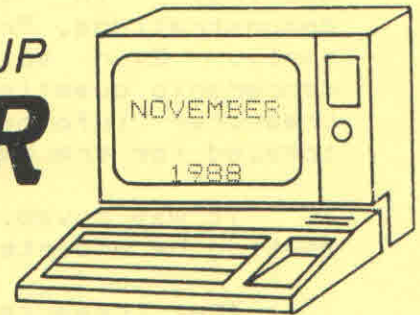


CEDAR VALLEY 99'ER USER GROUP

NEWSLETTER



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****NEWSLETTER TOPICS****

1. Future Meeting Dates
2. Next Meeting Notes
3. Minutes from the Nov. Meeting
4. Bittown in the 99/4A
5. For Sale/Wanted
6. New members
7. Driving to the Chicago Faire
8. User Group Hardware List

(Note: all original material! No reprints, and no fill material! Keep up the good work, but let's make room for the next Tips next month!)

****FUTURE MEETING DATES****

Please mark the following dates on your calendar for future meetings:
DECEMBER 12, JANUARY 9, FEBRUARY 13.

*****NEXT MEETING*****

This month's meeting will be held on December 12 at West Music store, in the Collins Road Square shopping center. Opening is at 6:30 PM. West Music will demonstrate the MIDI interface for music through the computer. Bring your holiday smiles!

* MINUTES FROM THE NOVEMBER MEETING *

The November meeting was as usual an exceptionally busy business meeting. In order to make sure time was available for Jim's demonstrations, President Canady started the business portion a little early. Even so 19 of the 21 in attendance had filled out their membership questionnaire and paid their dues for the upcoming year. The treasurer informed us that 21 renewals and two new memberships were totaled for the new year.

It was moved, seconded and passed that the minutes of the October meeting be accepted as printed in the NEWSLETTER.

The treasurer's report was given by treasurer Bruce Winter. It was moved, seconded and passed that we accept the report as read.

OLD BUSINESS 1. The UG is still looking for a power stabilizing transformer for Sr. Pat. This project will be on hold until one can be found. (See related issue under NEW BUSINESS). 2. Ed has donated a TI EXTENDED BASIC for the UG's system. Thanks Ed. 3. The librarian asked for a discussion on various disks or programs he has located in the UG library which appear to have copyright protection. John was instructed to remove one disc from circulation through the library. Several others known to be now public domaine were to be labeled so. The rest will require more research to determine their status. 4. A general discussion followed on buying a second disk drive for the UG's system. Gary has a power supply that he will donate. Several adds were presented showing what drives were available. Jerry appointed Gary as a committee of one to look at our options and make a report at the next UG meeting. 5. The librarian announced that he has completed the listing of the UG owned system equipment. John presented the list to the secretary for publication. (See elsewhere in this issue of the NEWSLETTER).

NEW BUSINESS: 1. As announced in the October 88 issue of the NEWSLETTER Sr. Pat Taylor was looking for a second TI system for the other patients to use. Ed Edwards found such a system and has donated it. They are using a TV now but the UG has started a fund to get them a monitor. Ed modified the keyboard to allow it to be placed in the lap of wheelchair patients for easier access. 2. As an addition to the above it was noted that both of Sr. Pat's systems were in need of an expander cable to separate the expansion box from the computer. The UG has all the necessary parts for these two cables. It was moved, seconded and passed that the UG donate the cables to her.

DISCUSSION: 1. Jim Green announced that he had located two local sources for repair of printers. One which he has used is located in Denver, IA.; the other possible repair shop is in Palo. See Jim for details if you need printer repair. 2. The Sixth Annual Chicago TI Faire Convention was attended by eight of our UG members. A good time was had by all. Over 530 paid admissions saw, heard and felt a day filled with TI happenings. We even brought along Sr. Pat thanks to Ed. She sent a pile of her special thank you handouts to him. He in turn made them in to posters and donation boxes which were placed around the convention floor. This was the start of the monitor fund for her second system. Ed was never hard to spot at the Faire. He was the only one wearing a blaze red vest festooned with thank you notes from Sr. Pat. 3. Jim Reiss announced that he is an ASGARD Dealer. Their new word processor program, PRESS, is the one of the future. See Jim for this or

any other ASGARD programs.

ANNOUNCEMENTS 1. Each member listed the items they had available for buy, sell or trade. Those in attendance were then free to make their own deals.

The meeting was adjourned.

Jim Reiss did a demo of his new program release by ASGARD. TYPEWRITER is primarily designed for the casual typist who just wants to type. Jim also used TELCO to access several bulletin boards including his own in New Jersey. "Sorry Mom, but I can't chat now. I'll see you later." Thanks Jim for the great demo.

Submitted by Bill Faeth, Secretary

* * A VAN RIDE TO CHICAGO * *

B R R R I I I N N N G ! It's 3:30am. Time to get up and get ready to go to Chicago. This is the first time I have been able to go to a TI Faire. So many questions run through my mind. Will I meet any of the programmers I read about each month in the publications our UG gets? Will there be any hardware for sale? What about software? Where is that list of items I want to try to buy? Now it is nearly 4:00am. I had better hurry. I don't want to be late. At last I am here at the pickup point. Where is everybody? Did they leave without me? Maybe this is the wrong place to meet. What did Bruce tell me? Ah! Here comes a car.

In short order all are present. Bruce is driving. Gary is navigating. Jerry, Bob and I sit in the rear. "Which way do I go?", asks Bruce. After much discussion it is decided that we will go to Anamosa to pick up Ed then continue on US64 to the Rock River, then north to Rockford, IL. Then east on the Northwest Tollway. All goes as planned until the first toll booth is reached. After a mad scramble for the correct change and Bruce passes the "hoop" test and makes a basket with all the change we know we will make it OK.

Ed passes out the continental breakfast he brought as we enter Cook County. It's 9:00am and everyone is looking for the Holiday Inn. "Take the next exit, go north to the next exit (about 100 yards) then go east to the Inn". It's a good thing Bruce didn't follow those directions as they would have put us back on the tollway heading back home.

One further problem did arise when we at last found the Holiday Inn. "That looks the way in. Turn right here." Needless to say that statement was wrong. So close, yet so far. Now why did they put that fence and wall there? At last we have found the TI Faire. A dash through the rain to the hall only to find we will have to stand in line. I'll write of my impressions of the Faire itself next month.

Submitted by Bill Faeth

In last month's Newsletter, I printed a story by Gary Bishop called "The Story of Bittown". In case the story confused you, here is the "techie's" version of the same story. After you read this one, go back and read the layman's version. It should all make better sense. I'm sure you'll agree that Gary has a great talent for putting "computerese" into layman's terms! [ed.]

*** * BITTOWN IN THE 99/4A * ***

#1. The TI 99/4A home computer uses a 16 bit processor. A bit is a single unit of information that a computer can process. It is a contraction for "binary digit." This 16 bit processor is connected to a group of wires and lines on a printed circuit board. This group is called a bus, which is a vehicle for movement of goods and services. This particular bus carries bits, 16 at a time, to and from the processor. When the processor reads, it retrieves data stored in memory, results from counters, or from external devices. The data flow is from these devices into the processor, much the same as when you read a newspaper or magazine. The data flows from the page, into your brain, to be processed. Similarly, a write is movement of data from the processor to a memory, external device, or counter. The 16 bit bus gets converted to an 8 bit bus before it is used for a lot of things inside the computer. The reasons for this are many and varied, but probably due to the fact when the computer was designed, the only memory chips and devices available were 8 bit ones. Also, this was cheaper, and what every other computer was doing. Just because TI invented the 16 bit processor doesn't mean they could connect it up to everything else! Along with the data and address lines, there are certain other control signals necessary to make the whole computer work.

#2. The devices that the processor controls and reads/writes to are: random access memory (RAM), memory mapped devices, read only memories (ROM), and special devices called graphics read only memories (GROM). The ram is storage for the bits of information, 8 bits at a time. The 16 bits from the processor are converted to two 8 bit chunks, each sent or received separately.

The processor can store or retrieve data from any location in the ram, all it needs is the address of the data it needs, and BINGO! it can get it. However, the address is also a combination of bits, and must be known before any reads or writes can take place. The order of operation is: determine which address is needed, determine if a read or write is desired, and then send or receive the data. Note that every address has a one-to-one correspondence with a data storage and retrieval location.

Another method of storage is called a memory mapped device. This is simply a special address that is reserved to access a different type of memory. All storage and retrieval of information is done at this one address, but where you want it stored in the additional memory must also be specified. It is harder to describe in words than with pictures or charts, so I will use a sequence of events to explain:

1. Determine that a processor operation is going to be on a memory mapped device.
2. Determine the secondary storage location inside the memory mapped device.

3. Send this secondary storage information to the memory mapped device to allow it to prepare that specific location.
4. Once the memory mapped device is ready, it acts like a single 8 bit storage location.

The analogy to a merry-go-round is quite useful. Imagine each horse on the carousel has a number assigned to it. To allow the operator to stop the merry-go-round at a particular horse, you must tell the operator which one is desired. It takes a little time to arrange this, but once the horse stops at the entrance gate, a passenger can either get on or off this one horse. Well, here a horse=8 bit storage location, operator=control logic built into the device, and passengers=8 bits of data into/out of the memory mapped device.

A prom is a device that contains data permanently. It can't be changed, and is always available to read, once the address desired is known. It is possible to attempt a write to a prom, but nothing will be stored, and the results could be unpredictable. This device contains important system information, such as the keyboard controller, initialization routines, program loading control, etc. Stuff you don't want to loose or have changed, ever!

The last type of device I will describe is the GROM. It derives its name from the type of data it contains. It is a type of rom, but has a special address system that must be used. Once the starting address desired is sent to the GROM, simply read from it, and the 8 bits of data are available, although rather slowly. To retrieve the data at the next address, simply read it again, and logic inside the device automatically increases the address for every read. Much data is read in successive chunks, and this is exploited by the GROM. In a ram or rom, for each piece of data, the exact address must be supplied every time. Not so with the grom; it has smarts to reduce the load on the processor.

All of these devices use two busses: the address bus of 16 bits wide, and the data bus, either 8 or 16 bits wide. Note that the data bus is always used for its namesake. The address bus is used to access all the different types of devices. The extra control lines mentioned at the start determine what type of operation will be performed by the processor. Read/Write? Ram/rom/grom? Something else?

The Roms, rams, and memory mapped devices all have the same settings of the control lines. The computer can only address 65526 individual locations, commonly called 64K. The difference between these two numbers will be explained later. This 64K for rams/roms/memory mapped devices is called the processor address space, because there is only enough space for 64K of them. Now to read a grom, the control lines are set differently. This tells the control logic for all the devices listening to disable and remove the rams/roms/memory mapped devices from the data bus, and only allow groms to do their work. When the processor is in this mode, it is in the grom address space. Now there are reasons why there is not 64K space for the groms, but theoretically, there could be, just like the processor address space. Examples of groms are the internal console basic, video input/output routines, and sound control programs. There are 3 grom devices installed inside the console, and up to 5 more can be attached to the bus, either at the cartridge connector, or on the side connector. Because groms must know at what address they

start at, all groms are internally wired to respond to a certain group of address. If a particular grom was wired to be the first grom, it would accept any starting address between 0 and the maximum storage location it contained. This is typically about 6000 chunks of data at a crack. The cartridges that plug into the TI generally contain more groms. They must not respond at the same addresses as the internal ones, and are wired to be active at their own addresses.

Here is one reason that the extended basic could not be installed inside the console without some method to disconnect it. If another cartridge was plugged into the cartridge hole, chances are mighty good that it will have groms that respond at the same place as the extended basic roms. Big conflict. No can do.

Not all the processor address spaces or grom address spaces are used. If you do not have a memory expansion, then there is a group of addresses that go nowhere. Reading and writing to them will produce junk. Same with grom addresses. These two types of addresses share the same 16 lines, but have different control signals keeping things straight.

Now the difference between a K and 1000: because computers can only think of things that are on or off, this means numbers are combinations of "on's" or "off's". Well, a single bit can have two values, 0=off and 1=on. Two bits can have four combinations, 3 bits can have 8 combinations, etc. This means that for the 16 address lines of our computer, 2¹⁶ unique addresses are available. This number equals 65526. When the amount of memory was small, back in the beginning of computing, a large amount of memory was 2¹⁰ or 1024 storage locations. This was reasonably close to 1000, so it took the abbreviation of "K", the same multiplier as 1000. Well, as memories grew, the difference between K and 1000 also grew. This is why a 64K memory is not 64000 locations, but acutally 2¹⁶ = 65526 locations.

*** * FOR SALE/WANTED * ***

FOR SALE: ***CLEANING OUT THE BASEMENT *** TUNNELS OF DOOM CARTRIDGE AND CASSETTE, \$5; 99'ER MAGAZINE CASSETTE WITH ELECTRONIC HOME SECRETARY, MUSIC TEXT EDITOR, MUSIC FILE PLAYER, MICRO BARTENDER, AND INTERACTIVE FORMS GENERATOR, ALL CONSOLE BASIC, \$2; RING DESTROYER GAME CASSETTE BY REPUBLIC SOFTWARE, XB, \$4; TEACH YOURSELF BASIC AND EXTENDED BASIC CASSETTES, 3 TOTAL, \$5 FOR LOT; THIEF, SHOOTIT, AND CHICKEN GAME CASSETTE BY TOMPUTER, XB, \$5; HOWARD SAMS BOOK TI-99/4A CALC ELECTRONIC SPREADSHEET, \$4; BOOK 101 PROGRAMMING TIPS && TRICKS FOR THE TI BY LEN TURNER, NEW, \$5; BOOK: PROGRAMS FOR THE TI HOME COMPUTER BY STEVE DAVIS, \$5; TIGERCUBS NUTS AND BOLTS #1 DISK WITH PRINTED INSTRUCTIONS, I BOUGHT THE WRONG ONE AT THE CHICAGO FAIRE, \$12; SPEECH SYNTHESIZER, \$35; EXTENDED BASIC MANUAL, NO CARTRIDGE, \$4; CHILTONS REPAIR AND TUNE UP GUIDE FOR 67-78 CHEVY AND GMC VANS, \$5; MPI DOT MATRIX PARALLEL OR SERIAL PRINTER, TRACTOR OR FRICTION FEED, HAS GRAPHICS CAPABILITY BUT IS NOT EPSON OR GEMINI COMPATIBLE, WITH MANUAL, HIGH SPEED SERIAL CARD (9600 BAUD), 2 K BUFFER, 80/96/132 CHARS PER LINE, IBM AND TI COMPATIBLE CABLE, \$40; OLD ISSUES OF 99'ER AND HOME COMPUTER MAGAZINE, \$1 EA.; TWO 4 FT. BY 8 FT HOT AIR SOLAR PANELS, ONE IS ALREADY BUILT AND RECENTLY REMOVED FROM SERVICE DUE TO AN IMPENDING MOVE, ONE IS IN KIT FORM, WORKS GREAT! \$200 EA; CALL HOSS-TRADER GARY BISHOP, 319-377-9574 AFTER 5 PM.

* MEMBERSHIP RENEWALS AND NEW MEMBERS *

We had a good turnout for the annual membership renewal meeting last month! Most of the local members renewed their membership. We want to give a special welcome to new and returning members: Kenneth Jennings and Dave Dalton. We hope you will find several ways to add your talents to our group! Glad you joined!

* CEDAR VALLEY 99'ER UG HARDWARE *

The following list of equipment owned by the Cedar Valley 99'er UG has been submitted by librarian John Johnson to the secretary Bill Paeth for publication in the NEWSLETTER. Updates will be published as they are received. The date of this list is Nov 10, 1988.

NO.	ITEM	BRAND	NOTES
1.	MONITOR	SAMSUNG	television
2.	PRINTER	STAR	Gemini-10X
3.	COMPUTER	TI99/4A	
4.	P E BOX	TI	contains the following:
4a.	DISK DRIVE	TANDON	TM100-2 (DS)
4b.	DISK CONTROLER	TI	
4c.	RS-232 CARD	TI	
4d.	32K MEMORY CARD	TI	
4e.	FLEX CABLE INTERFACE	TI	
5.	DISK DRIVE	TI	FHP 1250 (SS) spare
6.	CASSETTE RECORDER	TI	power cord
7.	BOOK		Personal Computing Communication by Alfred Glossbrener
8.	EXTENDED BASIC	TI	cartridge

Submitted by Bill Paeth, Secretary

MEMBERSHIP NEXT MEETING

MONDAY, DECEMBER 12

6:30 PM --- WEST MUSIC COMPANY

OUR HOSTS WILL DEMONSTRATE THE

LATEST IN MIDI INTERFACES

FOR SUPER COMPUTER MUSIC!

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