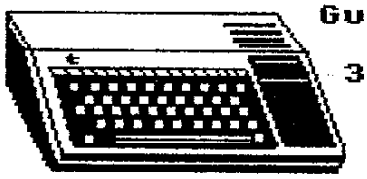
GUILFORD 99'ERS NEWSLETTER





SUPPORTING THE TEXAS INSTRUMENTS TI-99/4A COMPUTER



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TO:

VOLUME 7 NUMBER 10 OCTOBER 1990

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The Guilford 99'er Users' Group Newsletter is free to dues paying members (One copy per family, please). Dues are $12.00 per family, per year. Send check to:LF Jones, 3202 Canterbury Dr., Greensboro, NC 27408. The Software Library is for dues paying members only. (George von Seth, Ed.: 292-2035)

OUR NEXT MEETING

DATE: Oct. 2, 1990 Time: 7:30 PM. Place: Glenwood Recreation Center, 2010 S. Chapman Street.

Program for this meeting will be a demonstration of how to get from a blank sheet of paper to a newsletter cover by using PAGE PRO and some of the fairware graphics that are available. Included are some interesting conversions from one format to another.

MINUTES

The September 5th meeting of the Guilford 99er Users' Group was held at the Glenwood Recreation Center on Chapman St. in Greensboro, N.C. There were 6 members present.

The minutes were accepted as they were printed in the Newsletter.

OLD BUSINESS:

Bob discussed the availability of 32K chips $5.50 per chip in lots of 30 or more. These are low-power chips and can be used in the Quest card.

NEW BUSINESS:

Herman donated 3 books to the club to be auctioned off at the November meeting. They are: PROGRAMS FOR THE TI HOME COMPUTER, INTRODUCTION TO ASSEMBLY LANGUAGE FOR THE TI HOME COMPUTER, and DATA AND FILE MANAGEMENT FOR THE TI99/4A COMPUTER.

There is reason to believe that Tony McGovern's version 4.30 may be the last we will see of this program. It is in the library and also on the BBS.

We will need a nominating committee for the December election and it will be picked at the October meeting.

Dill brought "PLUS" with several enhancements, fonts, and programs for word processing.

The program was conducted by Bob Carmany and was on the MISSING LINK. It was a very good program and thanks to Bob.

Submitted by Tony Kleen for "Mac" Jones

RAMBLING BYTES

by "Mac"

First off I would like to thank Tony for taking the minutes for me while I was in the Hospital. Secondly, I wish to thank the members at the September meet for the get well card and the box of disks they sent. They were much appreciated fellows. It's not often I pick on a member but Herman, who is one of the few charter members, has done so much for the club that I feel it is in order to reconize just some of the things he has done. Over the years Herman has given many donations in money, software, hardware, and books plus his time and I for one just wanted him to know that he is appreciated. Although Herman's forte is mostly printers, he is very knowledgeable in the TI and it's workings. I don't ever remember anyone stumping Herman on a question about printers or the TI. The three books he has donated are, I am sure, much sought after books, at least two of them are. The ones on Assembly Language and File Management are books I have never seen advertised. Although Herman has another computer at home, he is still active in the TI and the group. I would just like to say "thanks Herman".

I was reading the Hunter Valley Newsletter that came yesterday and they are asking that anyone wanting to order the Quest card to do so NOW! Since the number of boards to be made up determine the price, they would like to get all orders together by the end of September so they can get the boards printed. The price is $50. Australian which if I remember correctly Bob said would be about $60. or $65. U.S. funds. This is for the board without the chips and sockets needed for the memory. Those of you who wish a Quest had better get on the stick!

At one time I had mentioned the fact that you could now get Super Mario Brothers for the TI. After reading the report on it from Gary Taylor of PUG, I think I will pass on that one. According to Gary it took 5 weeks and a phone call to finally get the disks and then it wouldn't run on his machine because of a crazy protection scheme that was not compatable with his Myarc HFDC disk controller but would run on his son's computer with the TI controller. Gary says the graphics have a lot to be desired and it is quite a bit slower than the Ninetendo version. Oh well, I can live without it! Thanks for the warning Gary!

Now that school has started my grandson don't come by as much so I am able to "pute" more on my TI so maybe I can go through some of these amassing disks stacked everywhere and sorta get some simblance of order once more. After all, if I can't do much around here but walk for 3 months(Doctor's orders gang) then I should have the time!

Lord willing I will see you all at the October meeting so until then, enjoy the good TImes.

CALL PEEK(PRES)

An interesting package made an appearance in the mail the other day. Actually, it started earlier when Laura Burns of MICROpendium called and asked if I would be interested in doing a review of the Asgard Mouse. I agreed and that's what was in the package.

I'm not a "graphics" person but I thoroughly enjoyed my experience the the mouse. It was quite easy to get used to after an hour or so of practice making some "less than perfect" doodles and designs. After a bit of practice, I hooked it up and followed the instructions to interface it with TI-ARTIST PLUS. Everything went quite well! I was even able to create some signatures as TI-ARTIST instances with it. I was quite impressed with the responsiveness and quick setup. Incidently, there is a comprehensive software package that comes with it. Look for the complete review in MICROpendium (I hope!).

I got another lot of disks from my long-time "mate" Larry Reid in Queensland. He must have one of the most active correspondences in Australia! I'm in the midst of going through the material that he sent along --I'm not sure how long it will take me to do that! I guess we have been writing to each other for almost 6 years now. What a computer pen-pal he turned out to be!

Needless to say, the Eprommer hasn't been behaving quite properly and that is the reason that we have another topic for this month's program. I hope to have all of the various minor bugs ironed out in time for the November meeting. When I finally get everything straightened out, it will make for a rather spectacular demo.

For those of you in need of disks, OFFICE DEPOT has a real deal. You can pick up 50 Nashua DSDD disks for $21.99 --that works out to about $4 per box. They are first-line, top quality disks and not the ones you see advertised for $.21 each that you end up throwing out half of because they won't initialize properly. They also have reasonable prices on printer ribbons and other "generic" computer equipment.

It is the time of year to start thinking about who you want to organize all of this for the coming year. Some of the TI Users' Groups are reducing the size of their administrations. It might be an idea for us to do the same. Hunter Valley, for example, has reduced the number of officers effectively to three. A CEO (or President), a Sec/Treasurer to handle the money and correspondence, and a newsletter editor. It might be something for us to consider at this meeting as a way of consolidating things a bit. It will take an amendment to our UG Constitution first, though.

While we are at it, we could do away with a formal nomination committee and just take volunteers for the three offices. I'm sure that we could "con" three unsuspecting souls into taking the offices for the upcoming year!

SWAN SONG

OR

BAD NEWS FOR MYARC PRODUCT OWNERS

By Art Byers, Sysop Delphi TI NET

For reasons which are extremely difficult to understand, MYARC inc. has frustrated and antagonized owners as well as vendors of their products.

As a Sysop on Delphi's TI NET, I read the messages posted by MYARC owners from California to Canada to Florida to Italy.

The complaints are all identical: MYARC in New Jersey does not respond to phone, Email or written letters. Some users have been able to get through to the Alabama phone number, but the information received has either been erroneous or evasive.

Just one example: One user, Donald Mahler, has been waiting for ONE YEAR for the return of his 512k card which was sent in for modification. Alabama has told him several different stories including "It has already gone out" followed by "It will go out in a few weeks" to "We'll check on it". He still does not have his card.

I have proof of many more similar occurances. Vendors have sent letters via certified mail return receipt so that they know the mail was received and never got a reply.

Perhaps even worse is the plight of overseas owners. Dan Marini of Italy, who has three 9640's in his club, has spent a small fortune on mail, Email, phone etc. and never received replies.

It is absolutely incredible that the people at MYARC can so injure themselves with this demonstration of destructive public relations.

AND there are other problems:

In addition, it is also apparent that quality control has slipped drastically. A lot of HFDC went out untested, with wrong chips, poorly soldered chips, etc. and did not work.

At the November '89 TI Faire in Chicago, Lou phillips told me to my face: "I do not lie" and "I answer all mail". Obviously I have ample proof that both those statements are false.

It is well known that Lou Phillips is engaged in a full time consulting job and that MYARC has become a side or part time business for him. In addition, Lou told me that Jack Reilly is "inactive". The question arises: Who is minding the store?

My advice to anyone thinking about purchasing a MYARC product, either new or used, is that if you are not a technical type able to repair and service hardware yourself, you had better be willing to take the known risk of what is described above. 9640 and HFDC owners are obviously worried about the lack of support. Think twice or three times before you join them!!

Here is a message thread from Delphi to show a typical discussion among Myarc product owners:

13788 17-JAN 00:28 9640 GENEVE
RE: 9640 SERVICE
From: BLHELLSTROM To: ALL

I have something I want to field to the forum here and see how others feel. We are now seeing some activity in software development for the 9640 which is definately a big step in the right direction. I think we have another issue which maybe we should consider and focus some attention on and that is service for our Geneve and peripherals. Back in June, I had a problem with my HFDC card overheating after about 10 minutes of use and leaving me without access to the hard drive. After the suggestions were made here to put heat sinks on the regulators on the card, it has worked fine until recently, I had another flare up after the computer was on for several hours. I don't know about the rest of you, but the one thing that scares me the most is what happens if we have a hardware problem? After hearing the horror stories of people here who have sent things to Myarc for repair and have waited over a year and still don't have things back, I think it is a valid concern. Even if I did purchase an extended warranty on the HFDC, I would rather attempt a fix by myself than to ship anything back to Myarc. Let's face it, if Lou has no time to get the software that we have been promised out to us, how can he have any time for repairs?! Most local repair shops won't touch any of our hardware if it doesn't say IBM, Apple, etc. Maybe we should see if somewhere in our vast TI community there is someone with an in-depth enough hardware knowledge to maybe be coaxed into opening some kind of servicing for our problems when they crop up. Whether it is with Myarc's approval or not, I think it is definately something to discuss since I think we all know at some time or another, we will have some kind of hardware problems.

A lack of software has never been a concern of mine with the 9640 because of the vast majority of programming talent we have available to us. That is what has kept the 99 going all of these years. Maybe I can replace an LED or do a small hardware mod but when it comes to troubleshooting and major hardware repairs, I sure don't know enough to even try to do anything serious.

As a group, maybe we can come up with a solution. There may be a day when Myarc may not even be there for us and I think we should look at all of our options if we want our swans to enjoy the long life we have had with the TI.

And so I ask our wise forum of developers and users, what do you think?

Bruce

13790 17-JAN 04:30 9640 GENEVE
RE: 9640 SERVICE (Re: Msg 13788)
From: JERRYC To: BLHELLSTROM (NR)

Our Washington DC area UG, "MANNERS" has gotten help from one of our members, Richard Roseen. Unfortunately Richard always has a large number of projects competing for a limited amount of time. On occassion, Lou has provided Richard with

info on particular repairs on an engineer to engineer basis.

I suspect other U6's have a particular member who can sometimes help out, but doubt that many of them could do this kind of work on a commercial scale.

Jerry

13796 17-JAN 21:19 9640 GENEVE
RE: 9640 SERVICE (Re: Msg 13788)
From: TELEDATA To: BLHELLSTROM (NR)

Bruce:

At one time, recently in fact, we at Disk Only Software were throwing around that idea you just talked about. Although it isn't completely dead, we did come up with some hitches.

1. Us working on a 9640 or other Myarc product would void any warranties you may still have with Myarc.

2. The cost of fixing any hardware item isn't cheap. Try fixing an IBM sometime and see what the repair shop will charge you. I had one fixed and it cost $60.00 just to open the case up whether I wanted to fix it or not. Would you and others be willing to pay for something like that?

3. Since many of the hardware problems are just creeping up, no one really knows what is exactly wrong with an item and it seems no 2 "like" problems are the same all the time. This could cause the card to go back and forth to you and us.

4. Without Myarcs direct help, which we expect none of, we would have to go back to the board designers and have them help figure out the problems also. A quick turn around would not happen in a case like this.

5. Since we couldn't get a part like the gate array from Myarc, what would happen if that major part went out? We would have to tell you your 400.00 computer isn't any good. Which brings us back to #1. Myarc wouldn't fix it either after we sent it back to you.

Our main concern was cost and knowledge of the problems. If TIers are willing to pay repair shop prices to fix the cards or computer, then we might make a go at it. If we could get the designers to assist we couldn't pay them below market wages either.

So it becomes a catch 22. Wait a year for Myarc to fix the item or send it to the shop and pay to get it repaired and void your warranty. Comments?

Jeff

13800 17-JAN 22:29 9640 GENEVE
RE: 9640 SERVICE (Re: Msg 13788)
From: ARTBYERS To: BLHELLSTROM (NR)

You certainly have raised a valid and very troublesome point, and this thread contains others - ie: Jeff's mentioning what happens if a Gate Array goes bad.

One thing we CAN do, is set aside all the files in the 9640 DB (and forum messages) into one place in the 9640 data base - files that have to do with hardware problems, diagnosis and fixes. Perhapswe can number all those files starting with an "R" to make them easier to find.

Perhaps, if enough 9640 owners will inquire (not confront) of Lou, in person at whatever TI Faires he may attend (He probably will be a TICOFF as it is in his backyard) as to what can be done to speed up the repair process, He might just try to find a knowledgeable repair agent, or even license a repair agent in various parts of the country.

But as long as Myarc is actually still in business, you are better advised to try to get your repairs done under those auspices.

I suspect many 9640's will end up as expensive door stops unless Lou can give better service than has been the recent case. -Art

!!!!!!!!!!

CABLE CONSTRUCTION

INTERFACING COMPUTERS WITH DEVICES

(part 1 of ??)
by Guntis Sprenne

This series of articles will cover various aspects of connecting a computer to another device. The other device could be another computer, a printer, MODEM, DIGITIZER, or any other device that has a corresponding interface. The list of possible devices is open-ended; more and more devices are being marketed every month. Some others that I have not had experience with are; MIDI devices (MIDI is a standard for interconnecting musical devices such as electronic pianos, drums, etc. to computers), security systems, home control systems.

The first step in interfacing two devices is to determine if it is possible. For that you will the specifications (specs) for each device. Both devices must use the same 'standard' for direct connection. An RS-232C device has to be connected to another RS-232C device; a parallel port on a computer must be connected to a parallel printer. There are other standards; RS-422 (a balanced version of RS 232C, but NOT interchangeable), telephone company (the familiar telephone connector), SCSI (Small Computer System Interface), ESDI (Enhanced System Digital Interface), ST-506 (Winchester and Floppy disk interrface). A digression: for those of you who have wondered what the RS in RS-232 stands for, the answer is (R)ecommended (S)tandard.

Unlike the 'real-world', there are NO exceptions to the rule that only like devices can be connected together. What is possible is to connect a 'protocol converter' between the two unlike devices. If you have a serial port and a parallel printer it is possible to buy a serial/parallel converter. The converter has a serial input port (to match the computer's serial port) and a parallel output port (to match the printer's parallel port).

After you have the specs for both devices (and they are both the same) the actual design of the cable can start. To design the cable you will need an idea of how the interface works. The next installments of the series will cover the two most widely used interfaces: RS-232 serial and CENTRONICS Parallel.

The rest of this section will deal with electronics basics. Interfaces may be either DIGITAL (LOGIC) or ANALOG. Here I will try to explain the differences. An ANALOG signal is one which can vary continuously. Several familiar examples are: the telephone system, an audio system, a radio receiver, and a VCR. Each of these devices deals with signals that can vary. Each device also has limits on the signals it can handle (on a stereo amplifier you shouldn't take the speaker output and feed it into the microphone input; at best you'd get a VERY distorted signal, at worst you'd damage your equipment). When connecting various devices the output capability of the source must be matched to the input capability of the destination (or load).

DIGITAL signals, on the other hand, can vary only between two known states. The signal is either ON or OFF, a 1 or 0 (under normal operating conditions). The voltage (sometimes current) level that determines a 1 or 0 varies with the interface. The RS-232 standard uses +3 to +25 volts for a 1 condition, and -3 to -25 volts for a 0 condition. The area between +3 and -3 volts is undefined and should be avoided; in other words, the signal should change from greater than +3 volts to less than -3 volts as quickly as possible. Digital Logic uses +5 volts for a 1 and 0 volts for a 0 (although in negative logic systems +5 volts is a 0 value and 0 volts is a 1 value). As in an ANALOG system the DIGITAL signal source should be connected to the appropriate load.

To illustrate the difference between ANALOG and DIGITAL signals, consider the monitor for a computer. A DIGITAL monitor uses the input for Blue to control the electron gun; either on or off. An ANALOG monitor uses the input for Blue to control the intensity of the electron gun from off through the different intensities of blue depending on the voltage applied. Because the intensity of the 3 electron guns can be varied, an ANALOG monitor can display a wider range of colors than a DIGITAL monitor. It also requires a more expensive controller card and software to use those capabilities.

INTERFACING COMPUTERS WITH DEVICES

(part 2 of ??)

This is part two of the series on connecting your computer to whatever you'd like to connect it to. This time I'll try to explain the RS-232 interface so that you should be able to hook-up a MODEM or serial printer to your computer.

First a few warnings. The RS in RS-232 stands for (R)ecommended (S)tandard. Which means that in some cases serial devices will have connectors other than the standard DB-25 (a good example is the 99/4A which has two ports sharing one connector and the AT style connector which uses a 9-pin instead of 25-pin connecter. In most cases mis-wiring a cable will cause no harm; if you are at all uncertain as to what you are doing, seek help (I assume NO responsibility for any damages resulting from using this information!!).

The RS-232 interface is specified using a DB-25 connecter. It has 13 pins on the top row and 12 on the bottom. The connecter is shaped so that it can be mated only one way. The standard includes two "designations": DTE (Data Terminal Equipment - usually a computer or other terminal) and DCE (Data Communications Equipment - usually a MODEM). The "designation" of the interface determines how the pins are used. That will (hopefully) become clearer later.

The pins are specified as follows:

1 -- frame ground (FG)
2 -- transmitted data (TD) ->
3 -- received data (RD) <-
4 -- request to send (RTS) ->
5 -- clear to send (CTS) <-
6 -- data set ready (DSR) <-
7 -- signal or logic ground (SG)
8 -- data carrier detect (DCD) <-
9 -- 22 -- ring indicator (RI) <-
10 -- 23 -- data rate selector <->
11 -- 24 -- external transmitter clock ->
12 -- secondary DCD <-
13 -- secondary CTS <-
14 -- secondary TD ->
15 -- transmitter clock <-
16 -- secondary RD <-
17 -- receiver clock <-
18 --
19 -- secondary RTS ->
20 -- data terminal ready (DTR)->
21 -- signal qualtiy detect (SQ)
22 -- ring indicator (RI) <->
23 -- data rate selector <->
24 -- external transmitter clock ->
25 -- busy ->

The -> arrow shows a signal going to the DCE; the <- arrow shows a signal going to the DTE. In an ideal world, DTE and DCE devices can be joined by a straight through cable with the appropriate gender connectors. The cable would be wired:

```
          1 ------------------- 1
DTE device 2 ------------------- 2 DCE device
           3 ------------------- 3
           4 ------------------- 4
           *         *           *
          25 ------------------- 25
```

In the "real world" things are seldom as easy. An explanation of each pin's function follows.

Pin

1 - frame ground. A connection to the AC safety ground.

2 - transmitted data. Data sent from the terminal device.

3 - received data. Data received by the terminal device.

4 - request to send. An indication by the terminal that it has data to transmit.

5 - clear to send. Response from the communications device that data can be sent to it by the terminal.

6 - data set ready. An indication that the communications device is ready. Usually raised after power-up (and after self-test passes).

7 - signal ground. A common reference for all signals.

8 - data carrier detect. An indication from the communications device that a valid MODEM tone has been received.

20 - data terminal ready. An indication from the terminal equipment that it is ready. Usually controlled by the ON-LINE switch on 'dumb' terminals; software controlled with computers and terminal programs.

22 - ring indicator. A signal from the communications device that it has detected a ring on the phone line. Used to inform the terminal that it may have to raise DTR so the line can be answered.

One thing that can't be stressed enough is that you should be familiar with your devices' manual(s). I would even recommend that before buying something you check out the section in the manual that deals with the interface. A good manual can sometimes make life lots easier.

Many newer printers 'force' the condition of certain pins if no external signal is present. For example, if nothing is connected to DCD the printer may 'make' DCD high; this can be done with software or hardware (here I assume that everyone knows that all modern printers have a microprocessor and ROM that controls the printer).

This is where the 'magic' starts. The data output of a DTE device is pin 2; the data input to a DCE device is pin 2. If the devices to be connected are dissimilar (one DTE and one DCE) then the cable will have pin 2 wired to pin 2. The same thing holds true for RTS, CTS, DSR, DTR, RI, DCD so the cable is straight through as shown on first page.

If both device are the same (two DTE devices, for example) then pin 2 will be wired to pin 3, pin 3 will be wired to pin 2 (pin 2 [the ouput of a DTE] to pin 3 [the input of a DTE]). That's the easy part.

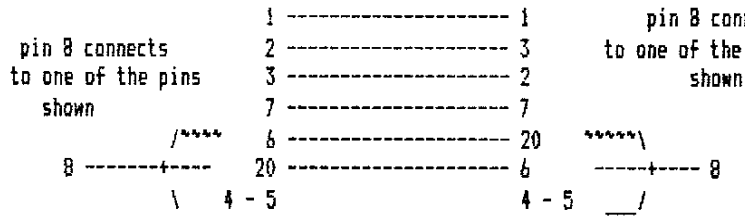
The terminal ready output of one device has to go to the data set ready input of the other device. This would be pin 20 wired to pin 6; and pin 6 wired to pin 20.

The request to send of a device goes to that same device's clear to send. Or, pin 4 would be connected to pin 5 at each end.

Usually, the data carrier detect pin needs to be high for a device to receive data. This can be accomplished by connecting pin 8 to either pin 6 or 20 or 4 or 5. Selection of where to connect pin 8 should be determined by reading the manuals of both devices. If pin 20 is used for a busy indication as well as terminal ready, then pin 8 should be connected to 4 5. If one of the devices toggles request to send, the pin 8 should be connected to either 6 or 20. Note that if both devices are the same (DTE DTE or DCE DCE) then pin 8 for one device should not be wired to pin 8 of the other.

The signal grounds of both devices are ALWAYS tied together. Frame grounds may or may not be tied together (if there is space I'll discuss the various problems which occur when frame and logic ground are tied together.

From the above, a cable to connect to similar devices (sometimes called a MODEM eliminator) would be wired:



If the basic cable doesn't work, then it's troubleshooting time. I'll describe some common symptoms and how to rewire the cable. For the discussion I'll assume a computer serial port and a serial printer, both DTE devices. The ideas can be extended to other devices.

In most cases, the status and control pins (all pins except 1,2,3 7) use a negative voltage (low) to indicate false and a positive (high) voltage to indicate a true condition. For example, Ring Indicator goes from low to high when the MODEM detects a ring, and from high to low when the ring is gone. When a terminal or printer is OFF-LINE the DTR is low; DTR is high when the device is ON-LINE and ready to print (usually - sometimes error conditions could be signaled by the BUSY indicator; the TI 810 printer uses pin 11 for BUSY/FAULT conditions and has an option to have DTR high as long as the ON-LINE LED is lit or to have DTR also go low when a BUSY/FAULT condition occurs).

PROBLEM ONE: Lost data. You sending a file to the printer, it prints, but every so often parts of your document are missing.

SOLUTION: The computer is not sensing the printer's busy status. Determine how the printer signals busy (using pin 20 (DTR); pin 25 (seldom used); or some other pin (the TI 810 printer uses pin 11)) and wire the cable accordingly. The wire

that signals printer busy could be tied to the computer's pin 6 (DSR), 5 (CTS), or pin 8 (DCD) [or another pin if the interface is non-standard, such as the serial ports on the 99/4A]. Sometimes the printer and/or computer use X-ON/X-OFF busy control. In this case the printer transmits a control character when its buffer is full, and another when the buffer is empty. The usual codes are hex 13 for busy, hex 11 for not busy (or resume sending). If this occurs, then either the printer or computer will need to be reconfigured to match the other device.

PROBLEM TWO: The computer sends data, but the printer doesn't print. The computer returns a status indicating that printing has finished, but nothing has actually printed.

SOLUTION: The printer is not receiving signals that indicate it should print. The presence of data on pin 3 is not enough. DCD, DSR, and/or CTS may have to be high. Consult the printer manual to determine which signals have to be high for the printer to print, and make the needed connections. Solving this problem may cause problem one to appear. Also, try reversing pins 2 and 3 on one end of the cable.

PROBLEM THREE: The computer is told to print, but just sits there, or, eventually, returns a 'device not ready' message.

SOLUTION: The obvious one is to make sure the printer is ON-LINE. If it is, then the computer is not receiving the device ready status from the printer. As in the above case, read the serial port documentation to determine which pins need to be high and make the needed connections. Correcting this problem may cause problem 2 or 1. NEXT SECTION- PARALLEL INTERFACES

RAMdisk RAMBLINGS

By Bob Carmany

It looks like there might be some life left in the ol' TI after all! At least there are rumblings and rumors about some new products being introduced or in the "to be introduced" category.

Myarc is going to have some competition for its HFDC. Unlike the Myarc entry, this one might work properly. Electronic Systems Development Corporation is supposed to be introducing a hard drive controller that will handle four floppies and four hard drives of any configuration. It will use an EEPROM for the DSR and thus upgrades can be loaded directly from disk. There are some other bits in the literature but it should be interesting.

Rumors have surfaced that there is going to be a new card coming out using the TI 9958 chip that will give you 80 columns and 19,000 colors on the screen. It sounds sort of like a "super" 80-column card.

Asgard is trying to get the rights to produce the Mechatronics 80-column card in the U.S. and they hope to come up with some updated software to takje advantage of the 80-column capability. A PAGE PRO Poster making program is in the works along with an 80-column version of PAGE PRO.

RAVE has a new P-Box in limited production that will allow up to 5 drives and 8 card slots. It comes with a 200 Watt power supply and the price range is from $275 to $375 depending on the configuration. It is mentioned in the latest literature from RAVE and it looks very much like one of the Clone boxes.

There is still new software coming on the market for our orphan. PAGE PRO has been updated to version 1.5 and TI-BASE is now in version 3.0x. It seems that the software authors continue to refine and focus their products. F'WEB is now into version 4.30 and there is an upgraded version of TI-ARTIST called TI-ARTIST PLUS. All of this software is well worth the investment it takes to buy it.

WHY PROGRAM?

The original idea for this article came from one authored by Jim Peterson (Tigercub Software) and I thought that I would add my thoughts to it as well.

The question remains: Why bother to learn computer programming? There certainly isn't a great deal of money in it. Most of the major applications have been introduced and the TI marketplace is no longer large enough to sustain a large software introduction. Even though it is really no longer possible to make a pile of loot programming for the TI, it does have advantages.

How often have you come across a program that was nice but needed a bit of alteration to suit your needs? I ran into that problem quite frequently when I started to adapt some of my library material to run from my twin Guests. Admittedly, it was usually as easy as changing a couple od disk accesses but there were some others that needed substantial re-writes.

That's one reason to learn programming. It sure is nice to be able to customize a program to suit your own needs and system configuration.

Often times, there isn't a commercial program available to fill a particular application. If you know a bit about

programming, you can solve that problem rather neatly. All you have to do is write your own program. It doesn't have to have the polish of a commercial effort as long as it will do the job.

Another reason is to understand what your computer can and can't do. Without getting into a discussion of computer architecture, suffice it to say that there are many more "cans" that "can'ts" when it comes to the TI. One of the reasons that I explored Forth programming and am now starting A/L programming is sheer curiosity. After using the likes of DM-1000 and F'WEB for several years, I wanted to see how it was done. After a couple of rudimentary programs, I discovered that none of it is really "magic". There is no slight of hand involved --just good, sound programming. I'll probably never introduce a single piece of commercial software but I am confident that in the very near future I will be able to come up with my own programming applications whenever the need arises. I find programming a lot more interesting than any of those adventure games.

I'll be willing to conduct classes in any language you wish to learn --A/L, Forth, or XB. Whether there is one person who wants to learn or several. Contact me at the next meeting --- Bob Carmany

MOST SIGNIFICANT BIT

We are still in need of articles, programs, etc. for the newsletter. We will take them in any form and on virtually any TI-related subject --no matter how remotely related. If everyone in the UG would write one single page article, we would have enough material to last for the better part of the year. Help us out!!