

THE DELAWARE VALLEY USERS GROUP

P.O. BOX 6240 STANTON BRANCH, WILMINGTON DE 19804-9998 DEDICATED TO THE TI AND COMPATIBLE HOME COMPUTER FAMILY

WELCOME NEW DVUG MEMBER Bill Cook (Kane, Pa.)

RECENT RENEWALS WITH DVUG: Richard Jabkowski

CONTENTS FOR THIS ISSUE OF THE DATA BUS:

THOUGHTS OF THE POLITICAL SEASON

"He [Rev. Jesse Jackson]'s a poet; [N. Y. Governor Mario] Cuomo's a poet; [Massachusetts Governor Michael] Dukakis is a Word Processor." - Richard M. Nixon.

POLITICIANS RUN, Fairware by Marsoft Inc., P.O.Box 83 E. Glastonbury, CT 06026. Extended Basic game simulates a Presidential Campaign. 2 players vie for votes in various states. There are 4 variations of the game.

Available on SSSD, 273 Sectors, from the Los Angeles Computer Group. Write Librarian FRED MOORE, 7730 Emerson Ave., Los Angeles, CA 90045. This and any other program in the LA 99er Group Library is available for \$3 per program disk, or 4 disks for \$10. Add \$1 for shipping/handling of the first disk, \$.25 for additional disks.

Catalogs from the LA 99er Library were distributed to DVUG chapters this Spring. Check with your Librarian, or consult the Newsletter Library copy of LA 99er TOPICS, for additional material not in DVUG's Library. DVUG Librarian Don Newsom can be reached at (609) 299-3720. COMING MEETINGS OF DVUG AFFILIATED GROUPS:

SCULLVILLE, NJ: Thursday, July 7, and August 11, 7:30 p.m.

DOVER, DE: Monday, July 11 - TOPIC: Using TI-Writer

CHRISTIANA MALL, Delaware: Thursday, June 23, and July 28, at 6:30 p.m.: Always the 4th - NOT last, Thursday monthly.

THE OVERWHELMING SOUNDS OF SUMMER SILENCE: MEMBER NEED ?

With little clear indication from members as to areas of needs or interests, it makes it hard for your Editor to know on what to focus each issue. Do you identify with the profile from Ali Ulgen's poll in the March newsletter? Do you use DSDD system disks so that Funnelweb or like loader aids are meaningful to you? Those who consistently attend meetings are interested in ongoing development of their TI systems, with spreadsheets, data bases, BBS terminal help, VCR or robotic interconnections, graphic or print aids. I have no idea what the "silent majority" want, even if you renew, and say "nice job" when we meet.

There are innumerable articles of discussion in other newsletters, and current developments are always important - but does that mean hardware, or fairware, or a tutorial refresher for new members with undeveloped systems? In a ten-page monthly, it's hard to choose. In July's DATA BUS, you'll be asked to survey yourselves to provide direction, in terms of subject and format for your User Group - which you may have noted from the Ulgen poll remains one of the larger membership ones around, a great help for finding TI users with like needs, interests and ability to help one another - if we know where you stand!

The contrast in technical competence (as least, from the Editor's perspective) shown in articles in this issue is another example. Do you solder? Do windows? Only use tape (cartridges)? Let's hear from you!

DATA BUS. NO. THE VOL. 6 JUN. 4. 1988

DELAWARE VALLEY USERS PAGE 2 GROUP

DUUG EXECUTIVE OFFICERS FOR 1988

PRESIDENT...Jack Shattuck.....302-764-8619 SECRETARY. James Dreibelbis.215-623-8772 TREASURER...Norm Sellers.....215-353-0475 SGTatARMS...Bill McLean......302-366-1721 DOVER......Oscar Dawson......302-697-6343 SCULLVILLE Harvey Adams.....609-641-2105

Librarian...Don Newsom........609-299-3720

NORMAL MEETING SCHEDULES AND PLACES:

SCULLVILLE,NJ	ist Thurs.	7:30-9:00
DOVER, DE	2nd Monday	7:00-9:00
CHRISTIANA, DE	4th Thurs.	6:30-9:30

JERSEY SHORE: Scullville Firehouse #1 County Rte. 559 (on left, between mile markers 4 and 3), in Atlantic County, NJ. Ignore Station #2 on right en route.

DELMARVA CHAPTER: Kent County Court~ house. Basement Conference Rm. #25. The Green and State Street, Dover, Delaware. Use entrance on The Green side.

CHRISTIANA: Delaware's Christiana Mall on Rte. 7 at I-95, Exit 4-S, Community Room. Enter inside Mall, between J.C. Penney and Liberty Travel.

DVUG BULLETIN BOARD SYSTEMS (BBS)

No. Del-aware: (302) 322-3999 24 Hrs. 300 & 1200 Baud So. Delaware: (302) 674-1449 24 Hrs. 300 Baud So. Jersey: (609) 965-7930 24 Hrs. 300 Baud

A Delaware Valley Users Group membership includes monthly newsletter. library and software privileges, plus other special benefits. Annual membership rate: \$15.

Articles appearing in THE DATA BUS may be reproduced on BBS, disk or newsletter as long as DVUG source is acknowledged; unsigned work is by THE DATA BUS Editor. DVUG encourages exchange newsletters. being with DVUG, please.

ADVERTISING RATES IN THE DATA BUS

1/4 Page = \$ 5/issue, or \$ 45/12 issues 1/2 Page = \$ 8/issue, or \$ 75/12 issues Full Page = 15/issue, or 125/12 issues

THE DATA BUS goes to DVUG member homes in 4 states and over 60 TI User Groups.

Paid-up DVUG members may place a short notice of their used computer equipment for sale in THE DATA BUS without charge.

TRANSMIT YOUR NEWSLETTER COPY TO EDITOR Jack Shattuck, (302)764-8619 or reach us at the DVUG mailing address, as shown on Page One of this newsletter. NEWSLETTER COPY WILL NOT BE ACCEPTED FOR AN ISSUE AFTER THE 2ND THURSDAY OF EACH MONTH.

An annual index appears in February each year. Single copies of THE DATA BUS are available to inquirers who write to the Editor at DVUG's mailing address.

NOTICE TO OTHER USER GROUPS. ON MAILINGS TO THE DELAWARE VALLEY USERS GROUP:

We ask that you use the P.O. Box on THE DATA BUS mast to reach us. In past years, mail sent to changing individuals in the organization provided undesirable delays in reaching others. Thank you.

COMING AREA HAM/COMPUTERFEST SHOWS:

Monday, July 4 - Harrisburg, PA: Firecracker Hamfest & Computer Show. If interested, call (717)238-5414 for Dave Ratcliffe, President, Central Pa. Users

Sunday, July 24, Cherry Hill, NJ at Holiday Inn on Rte. 70, also 10 a.m. -4p.m. Admission \$4.50; vendor table \$45 flea market spot is \$20. For info, call (201) 533-1991 in North Jersey, or write to Robert Barlow, P.O. Box 76, in Livingston, NJ.

If you attend, identify yourself as

MINI BUT MIGHTY AID - EXTRACTING ROUTINE

XBasic Programming Utility, published in Word Play. The PUNN Newsletter. May 1988

How any times have you wished there was a way to extract a routine or part of a program from an Extended Basic program? Well, this little routine when merced into a program allows you to do just that. Originally published in MICROpendium DEC 1985 and provided by George Steffan LA/UG the features of this program are often needed. ... After typing in this program, save it to disk as a program, and again in merge format: SAVE DSKx.ROUT/EXTR,MERGE. Now load the program that you are going to extract the subroutine from.

Resequence your program to start at line 10, as this six-liner is now MERGED - MERGE DSKx.ROUT/EXTR into the start of your program. Enter RUN and you will be prompted for the starting and ending lines you wish to extract. You will receive an error promot but just simply enter LIST to see the routine lines you just extracted: the other lines are deleted. This routine can then be saved in Merge format, which can then be made runnable by NEWing and RUN DSKx.(Routine name). In most cases it will run when saved as a program.

> 1 CALL CLEAR :: CALL INIT :: INPUT "LINE NUMBERS OF ROUT INE TO BE SAVED: FIRST, LAST? ":L.M :: G=256 :: CALL PEEK (-31952.H.I.J.K)!M/pend 12/5 2 C=INT(M/G):: D=M-C*G :: F= (J-G)*G*K :: FOR E=(H-G)*G+1 TO F STEP 4 :: CALL PEEK(E, A,B):: IF A=C AND B=D THEN 4 3 NEXT E :: PRINT : "LINE";0; "NOT FOUND!" :: STOP !?P-4 H=INT(E/G):: I=E-(G*H):: H =H+G :: C=INT(L/G):: D=L-C*G :: FOR E=E+4 TO F STEP 4 :: CALL PEEK(E.A.B):: IF A=C A NO B=D THEN 6 12P-5 NEXT E :: PRINT : "LINE" ;N: "NOT FOUND!" :: STOP !?P-6 E=E+3 :: J=INT(E/G):: K=E-(G*J):: J=J+G :: CALL LOAD(-31952,H,I,J,K):: STOP ! 2P-

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DELAWARE VALLEY USERS GROUP MEETING, Christiana, May 23rd:

Meeting was officially called to order at 7:25 p.m.; Jim Davis agreed to take minutes in Secretary's absence. President Jack Shattuck noted with appreciation readiness of the ever reliable Vice President to help in unexpected as well as scheduled club activities.

Norm Sellers gave an updated Traeasurer's Report. Committee reports followed.

Newsletter Editor requested assistance from members who had familiarity with special topics to review selected newsletters from other User Groups, to determine relevant items in various categories, and write short articles for THE DATA BUS about them. Given breadth of TI interests, it is not possible for Editor to be on top of and write about every area, month after month.

Librarian Don Newsom will have updated Public Domain catalog of Software Library available in June. Delays were necessitated by requests for some descriptions beyond just the titles in Library Catalog, which has many programs.

TIBBS Committee suggested that more frequent calls to our main BBS would access latest software acquisitions, in a speedy manner. Calls are down in Summer despite student use, and much new has arrived. There appears an excellent opportunity for DVUG to obtain several hard drives, which which boost speed and storage capacity such that the whole DVUG software library could be available through the TIBBS line. That would be subject to obtaining Myarc's Hard and Floppy Disk Controller, finally available. The latter can handle up to 3 hard drives of 70 megabytes, plus 4 floppy drives. With 20 meg hard drives equating to 27 DSDD floppy storage capacity, that's a lot of programs. The President suggested deferral of a motion to purchase, pending notice to the broader membership.

John Kelley observed that CompuServe now advertises a Dover tie line, allowing those area residents to access it without need of a toll call.

Program demonstrations followed:

Jack Shatttuck provided hard copy screen dump and the full listing for each member present, and for each Chapter of DVUG, for an XBasic program he used for a Hospital Week display at the Veterans Administration. Among other items noted was ability to run it from XB Load in 50 sectors but not having to Call Files. This was attributed to doing a RESequence to start at 1 and save memory. The program was then shown to the group.

A group of approximately one-half dozen is studying use of Assembly Language under Norm Sellers' tutelage. Jim Davis provided a "chalkboard" comparison of TI's BASIC and assembly language routines to accomplish both data storage and addition of simple sums. If the BASIC compiler in our computers can be said to operate in a blink of an eye from our human perspective then A/L routines may be said to run at 1000 times the blink of an eye.

Congratulations to Bill Godshall, 50/50 winner.

DVUG DELMARVA CHAPTER MEETING, Dover, May 9th:

"Dem" Dawson, Chapter Chairman, opened the meeting at the Kent County Courthouse at 7:30 p.m.

Treasurer's Report was read by Al Freischmidt, which was approved as read.

Discussion centered on relocation of the BBS and upgrading to 1200 Baud. A problem identified with moving it was the necessity of toll calls from certain exchanges, the question arose, "do we really want to retain the BBS?" Another discussion cited aspects of the phone line and the limitations of the features theeon, i.e., no touch-tone, a limited number of outgoing calls or any other restriction that will aid in Keeping the monthly bill to a minimum. All present agreed that the Chapter should retain the BBS for at least another year; that Jim Gentry be considered the reluctant and temporary SYSOP.

All present attempted to present ideas for inducing new members into DVUG and to entice participation of current members. It was mentioned that at the most recent DVUG meeting, a visitor from the Baltimore Users Group stated that their group had gotten a listing from TI Lubbock, identifying owners of TI/99's in their area. We ask that our DVUG attempt to do the same, sharing such information with this Chapter. We could then intensify our membership efforts.

Chuck Bower and Dem Dawson gave a rundown on the Trenton Computer fair and displays/material available.

Chuck explained the experience he and Jim Gentry had, working computer-to-computer, using Jim's new modem which had the auto-answerng feature.

Jim England, with an awesome array of hardware and systems, demonstrated the TI/Home Entertainment interface, using Video taping, filming and playback.

The members held a general discussion of "Things to Come", the impact of digital processing on video, audio and combinations thereof.

The meeting was adjourned at 9:00 p.m.

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WIRE IT YOURSELF

ALTERNATE DRIVE INTERFACES

Downloaded From DELPHI TI NET. submitted by Tom Burke

If you are thinking of adding a second drive to your system, and it is not a T.I. drive, it may or may not work by connecting it to the external drive connector on the back of the Disk Controller Card.

If it does NOT work with the T.I. recommended installation proceedure, try this....

You will need the following: An adequate length of 34 conductor ribbon cable. (2 to 3 feet)

1 - female 34 pin connector. This will connect to the controller card inside the P.E. box. Part #41-908 6C

It should look something like this. 2 female 34 contact edgecard connectors. Part #41-946

This makes a total of three connectors. The part #'s are from RESCO Electronics. Use the crimp-on type connectors. Put part #41-908 6C on one end of the cable. Plug this into the controller card inside the PE box. Place the first edge card connector approx. eight to twelve inches from the controller card. Crimp it on the cable. Now you should loosen the screw on the right, rear, top of the outside of the PE box enough so that you can slide the other end of the cable out through the gap. When this is done,

plug the middle connector onto the internal drive, (don't forget to plug the power cable back on the drive), and put the drive back into the PE box, pulling the excess cable through the gap. DO NOT INSTALL THE DRIVE PERMANENTLY AT THIS TIME. JUST LEAVE IT SIT IN THE PEB

Next, crimp the remaining connector on to the other end of the cable. Bare in mind that when you do put the connectors on the cable, that the same wires must be connected to the same numbered contacts on all three con- nectors. (e.g. wire one goes to pin one on connectors 1, 2, 3) Plug the last connector onto the external drive. (contact one to contact one, etc) Now test the system. You may or may not have to remove the resistor from drive #1. Info on where the resistor is found is in the Controller Manual.

MAKE YOUR OWN CASSETTE CABLE

The following information will enable you to make your own single cassette cable for your TI. All parts are easily obtainable from Radio Shack, and for convenience the part numbers are given. All you need is a little skill and time to wire it up.

This is the diagram of the cassette port located on the rear of the TI, next to the power jack:

12345

______ J4 is the TI/99\..../ female that Cass.\.../ plugs into this Port ______ connection. 6789 J3=Cassette control (usually black) J2=Microphone jack (usually red) J1=Earpiece jack (usually white)

(Continued on Page 5)

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WIRE IT YOURSELF - Continued from Page 4

After getting all the parts together, wire the jacks one at a time with two conductor wire. Noting that J3 is a micro-mini phono jack, while the other two are regular mini phono jacks. The positive connection from J3 will connect to pin #1 on the D connector, and the ground goes to pin #2. The positive connection from J2 will connect to pin #5 on the D connector, and the ground goes to pin #3. The positive connection from J1 will connect to pin #8 on the D connector, and the ground goes to pin #9. Connect the wire number to the appropriate part of the plug, following the above method.

INTERFACE YOUR PRINTER TO YOUR MODEM

Many people have asked how to have the data that is coming from the modem, print to their printer at the same time it prints to their monitor. This is not hard, if you have a serial interfaced printer and it does work with the following printers : TI 99/4 IMPACT PRINTER TI 810 EPSON PRINTER GEMINI 10X

PRINTER

RS232/C MODEM

Some modems also connect pin 5 to pin 5. Pin 11 on the T.I. 810 printer is called "REVERSE CHANNEL". It is simular to the pin 6 of the RS232/C. Be sure to set the printer's baud rate to match that of your modem, (300 - 1200). The off/on switch permits you to pause the printer. Using the on line/off line switch on the printer will also pause the modem. The following are the pin connections for for a parallel interface (PIO) from your RS232/C to your parallel port on your printer.

You will need the following:

- An adequate length of 16 conductor ribbon cable.
- One 36 connection male Centronics connector.
- One 16 connection female PIO port connector.

Wire the connectors together as follows:

PRINTER SIDE II PIO CONNECTOR

11
22
33
44
55
66
77
88
· · · · · · · · · · · · · · · · · · ·
,,
1011
11–15 not used
1616

TAKE NOTE: For an Epson RX/80 printer, you must wire pin 13 to PIN 13

ADDENDUM by Art Byers of the CW 99'ers

If your PIO cable made as above does not work properly, try the pin connections listed below. they are taken from a cable supplied by Texcomp as being specifically for TI 99/4A and PIO printers and does work very well with the TI Impact Printer (which is an Epson MX 80).

Printer PIO CARD

1 thru 9 to 1 thru 9 11------10 19------11 not used 12 13------13 not used 14 not used 15 16------16

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SCREEN DUMPS FOR STARTERS

Your first TI expansion item may be storage capability to retain programming activity. If so, the next supplemental equipment to advance program development surely has to be a printer, to allow an easy recall of what's captured in a file or listing. Next are

additional printout features to observe: capturing one's creations for posterity is an endless pursuit of mankind.

Following are some introductory screen dump routines. First in BASIC from the Keyboard, let the user enter any 28-character (one line) string, dump it to a printer (your serial option may be "RS232.BA=4800" instead of "PIO") and wait for the next one-line input ... 24 times, one screen.

100 REM #24-LINE BASIC DUMP#	140 PRINT #1:A\$
110 OPEN #1:"PIO"	150 NEXT R
120 FOR R=1 TO 24	160 CLOSE #1
130 INPUT "":AS	

Should you want to print more than 28 characters on a line on the printer at a time - as opposed to 24 28-char. lines - you'll need to escape from the 24-line loop with a slight diversion by adding:

135 IF LEN(A\$))24 THEN 170 170 PRINT #1:A\$ 180 G0T0 130

Now, however, you'll get more than a single screen of text dumped since you have the 24-line limit PLUS a longer (screen) line you allowed yourself. The For-Next loop from lines 120 and 150 was a convenience, for a single screen at a time, a line at a time.

Use another option: set yourself to DIHension your output to an entire screen at a time. It's then irrelevant as to where your screen line ends, as a 24-line, 28-column screen can get dumped to the printer as a unit. Following is an Extended BASIC (XB) routine to do so:

90 REM Quick and Dirty Wor	120 CALL SCREEN(12) :: CALL V
d Processor by Del Gittinge	CHAR(1,2,30,24) :: CALL VCHAR
r, Marion, Ohio: Marion Area	(1,31,30,24)
99ers	130 FOR X=1 TO 24:: ACCEPT A
95 REM *PRODUCES 28 COL. LIN	T(X,1)BEEP SIZE(28):TEXT\$(X)
ES THAT DUMP AFTER 24 LINES	:: NEXT X
(ONE SCREEN); GOOD FOR A	140 OPEN 41:"PIO"
PROGRAM LISTING IN XBASIC	150 PRINT #1:CHR\$(15):: FOR
100 CALL CLEAR	X=1 TO 24:: PRINT #1:TEXT\$(X
110 DIM TEXT\$(24)):: NEXT X
10	160 CLOSE #1:: 60T0 100

Why dump the screen? To capture some instructions or perhaps the way text is displayed. More popular is the desire to capture a graphic display from the screen, often with specially formed characters.

Undoubtedly, the first piece of non-cartridge based software I bought was a \$12 ScreenDump first advertised in the pages of 99'er Magazine in January, 1983. Available in both the cassette and a disk format, the introduction of Extended Software's version (requiring Extended Basic then selling as a \$75 cartridge) was notable above all for its User Friendly explanation of the always mysterious world of printer codes.

Back in those days, having thorough documentation was deemed even more essential than ever, if you didn't have a TI Impact (i.e., Epson MX 80) Printer. The popular second choice of those dot matrices available at the time was the C.Itoh Prowriter (codes identical to the NEC 8023A-C), and these codes were provided, as well. Considering prices of \$880 for the TI printer, that alternative was important.

That Screen Dump program has been used for a variety of printers over the years due to clarity of documentation by author Jim Schwaller from Cincinnati. It last appeared for sale in the Holiday (December) 1986 Tenex catalog.

That program, superseded by speedier or specialized versions since then, never the less draws uers of both the newer as well as older printers to it, as a starting point for graphic code commands. Writers to MICROpendium often provide changes in internal code lines, while not citing the complete original program, due to copyright limits. THE DATA BUS Editor has obtained the author's consent to print the original program -- no longer with a meaningful commercial base -- to illustrate the purpose and method of screen dump for newer users.

How do they work?" SLOWLY. Character patterns at each location, 24 rows of 32 - not 28 - column locations, 768 times 8 blocks, are found on the screen. That totals 6,144 blocks of 8 picture elements (pixels), or 49,152 pixels that require dumping. That means converting hexadecimal character patterns (Charpats) into a binary code, and then changing it into a decimal code, for a printer to use.

How slowly it occurs depends on whether characters to be dumped, i.e., on the screen, occur more than once. If each ASCII character from 32-143 (available in XBasic) is used, the process for one screen could take as much as 15 minutes ... otherwise, 6 - 9 minutes, suggests the author. (Note that Sprites will not be captured by the printouts.) Yes, there are faster routines, with assembly language, or interrupt switches, special chips; but it's the principles we're learning here. (Continued on next page ...)

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SCREEN DUMPS (Continued from Page 6)

In a moment, you'll get to the the program itself, on pages 8 (for cassette) and 9 (for disk).

To capture your favorite screen, first you'll need to run your favorite program with the display you want. DEMO1 is a random sample graphics program, on page 8 of THE DATA BUS, which can be used with cassette.

Let's analyze the program you want to dump. Basically you run it, until you get to where you want to dump. You don't have to turn the page yet; just get an understanding as to where we're going.

Line 110 places various characters on screen. Line 120 reshapes them in accord with patterns found in Lines 140 - 370. Then Line 130 calls up the subroutine which activates the Screen Dump. In this case, it's Line 130, but it can be inserted at any particular line you wish into any program of choice. There are two parts which need to be included (for tape users). First, when you reach a point when you want to stop and print, use (FCTN 4) to interrupt the display. When the screen shows:

BREAKPOINT IN XXX

with XXX being the line number of the breakpoint, type in: XXX CALL DUMP :: END

and press (ERTER). In this case, XXX = (Line) 130.

Now add lines 32000 - 32060 (also on page 8), which will be invoked by the CALL DUMP command. Type RUN (ENTER) and the sample DEM01, or whatever program you use, will be loaded, ready to print out. At that point, for tape users, load, then RUN, the main Screen Dump program (on page 8) itself, to activate the printer.

Disk users should save "SCREEN/D", program found on Page 9 of this newsletter. Load DEMO1 but for Line I30 use RUN "DSK1.SCREEN/D" instead. Omit Lines 32000 -. When the program reaches Line 130, it will kick directly into your Screen Dump program (looking for it as DSK1.SCREEN/D).

Extended Software's screen dump shows you progress by moving an asterisk across the screen as it converts, then dumps the screen line by line and eventually sounds a loud tone to alert you to completion (you can get a coffee in the next room, meanwhile). You should realize that usually one runs a program once, to dump a particular screen. If there are several screens to dump, you'll have to rerun it and (BREAK), save, and rerun for each dump. Use a second tape, not the same cassette, for safety and convenience.

There may be occasions in which you'll return to that same graphic to redo the same dump to a printed page, time after time. THE DATA BUS logo, page 1 of this newsletter, is dumped month after month; it's permanently saved with the CALL DUMP (or RUN for disk) line inserted as needed. Of course the companion Screen Dump program is kept on the same disk. MODIFYING THE SCREEN DUMP FOR YOUR PRINTER:

We come finally to the real strength of the Schwaller program (aside from providing tape users a needed tool). The initial lines of the Screen Dump program, up until 160 or so, are geared to differences between tape and disk use since the data is scanned differently. You'll see a minor change or two in lines that follow, e.g., PRINT #1 versus PRINT #2, and in the CLOSE statement, else they're alike.

What lines take into account changes in printers?:

Commands to printers begin with an ESCape, or notice that following data is INTERPRETED rather than printed as follow in the program. The ESCape command is [PRINT #X:] CHR\$(27); and then the information. NOW you can look at listings on pages 8 and 9 and note these lines (the first reference is to the tape listing, then the Disk version):

Line 228 (Tape - Page 8) or Line 180 (Disk - Page 9):

Control or Escape codes to set the printer in graphic mode to produce lines closely spaced are found here. With a Gemini/Star/Epson compatible, the line shown works fine. The expression is CHR\$(27); "A" (ASCII 35); and a number. It tells us to use the decimal value of 8 to print lines that are 8/72nds of a dot position apart. That could also be expressed as 16/144ths, and may not use an easily-read decimal expression, but could appear as ASCII equivalent. Printers (like the C.Itoh 8510/NEC 8023A-C) would compare like this:

Decimal: PRINT #1: CHR\$(27);CHR\$(65);CHR\$(8); ASCII: PRINT #1: CHR\$(27);CHR\$(84);CHR\$(49);CHR\$(54);

Not only does it use the form CHR\$(27); "T"; and a number instead of CHR\$(27); "A"; but additionally, the number is in 144ths of an inch, and is expressed in ASCII instead of decimal. (ASCII 84 = "T") So it really says:

PRINT #1: (ESCape command); "T"; and then 1 6. (49 and 54 are ACII equivalents of 1 and 16, or 16/144ths of an inch)

Once you understand which language your own printer uses, you can make the appropriate substitutions. There will be four or five other lines in which changes can occur:

Lines 230 / 190 : Continue to print, despite normal Gemini /Star/Epson skipping of several lines on tractor feed paper, to avoid perforation Lines 250 / 210 : Provide a Character Return and Line Feed to go to column 1 and start next line Lines 310 / 270 : Inverts character printout (C.Itoh/NEC) Lines 350 / 310 : Concludes and closes printer file

Necessary information to make changes is found on page 9.

THE DATA BUS, VOL. 6 NO. 4,	JUN. 1988
PAGE 8 - DELAWARE VALLEY US	SERS GROUP
CASSETTE VERSION:	
	·
100 ISCREDI DUAP, COPYRIGHT 1902 EXTENDED SOFTWARE CO., INSPIRED BY ED YORK	Sample DEM01
110 OPEN M1: CS1 , INTERIAL, FIXED 192, INPUT 120 INPUT M1:A1 :: FOR R=1 TO 24 :: FOR C=1 TO 32	Graphic Program:
138 X=X+1 :: CALL HCHAR(R,C,ASC(SEG\$(A\$,X,1))):: IF X=198 THEN INPUT WI:A\$:: X=	
	100 CALL CLEAR
140 NEXT C :: NEXT R 150 FOR C=32 TO 143 :: IF (C-31)/11=INT((C-31)/11)THEN INPUT NI:A\$ ELSE INPUT NI	110 FOR A=1 TO 24 :: CALL H
150 FUR (=32 10 143 11 IF (C-31)/11=1((((C-31)/11)/1)C4 1(()) 11/1() 10 10 10 10 10 10 10 10 10 10 10 10 10	CHAR(A,1,95+A.32): 1 NEXT A
160 CALL CHAR(C,A\$):: NEXT C	120 FOR A=1 TO 24 :: READ A
	\$ 1: CALL CHAR(95+A,A\$)1: N
180 FOR A=2 TO 112 :: K(A,1)=-1 :: NEXT A :: H\$="123456789ABCDEF" :: B\$=RPT\$("0"	EXT A 130 CALL DUMP :: END
16):: C\$=RPT\$("F",16) 198 FOR A=1 TO 8 :: K(8,A)=255 :: NEXT A	140 DATA "0987654321123456"
200 NDEN 42. DC222 DA-4090 NA=9 EQ (11)P(1)	150 DATA "A5A5A5A5A5A5A5A5
210 FOR A=1 TO 256 :: PRINT #2:CHR\$(0);:: NEXT A :: PRINT #2:CHR\$(13);CHR\$(18) 220 PRINT #2:CIIR\$(27);CIIR\$(65);CHR\$(8):SET DISTATICE BETWEEN LINES 220 PRINT #2:CUIR\$(27);CIIR\$(65);CHR\$(8):SET DISTATICE BETWEEN LINES	160 DATA *F1F2F3F4F5F6F7F8*
220 PRINT #2:CHR\$(27);CHR\$(65);CHR\$(8);!SET DISTAYCE BETWEEN LINES	178 DATA "3838394949585832" 188 DATA "D7FBA9F8DFD8FAAA"
230 PRINT #2: CHR\$(27) CHR\$(79) ! TURN OFF SKIP PERFORATION 240 FUR R=1 TO 24	190 DATA *2929292929292929
250 PRINT N2; CHR\$(13); CHR\$(10); RPT\$(* *, 24); CHR\$(27); CHR\$(75); CHR\$(0); CHR\$(1);	200 DATA "4F5F6F7F0F9F8F7F"
240 FOR C=1 TO 32	210 DATA "APCDEF5432109875" 220 DATA "3574685678796561"
270 CALL GCHAR(R,C,X) :: CALL HCHAR(R,C,42) :: X=X-31 :: IF X(1 THEM X=1 :: GOTO 3	230 DATA "A809C0E.F5456787"
40 200 IF K(X,1)()-1 THEN 340 ELSE CALL CHARPAT(X+31,A4)	248 DATA *5576879896564352*
290 IF A\$=0\$ THEN X=1 :: GOTO 340	250 DATA "5745342321ACDFBE" 260 DATA "2487347587848238"
3AR LE AL-C'S THEN X=R + GOTO 34R	270 DATA "A8A8A84874747646"
310 G=0 :: FOR A=15 TO 1 STEP -2 :: 8(8,G)=POS(H\$,SEG\$(A\$,A,1),1):: 8(1,G)=POS(H	288 DATA *4564558798978532* 298 DATA *5676798864435324*
\$,SEG\$(A\$,A+1,1),1):: G=G+1 :: HEXT A 328 FOR D=8 TO 1 :: FOR E=3 TO 8 STEP -1 :: FOR F=8 TO 7 :: IF (B(D,F)AHD 2^E)TH	388 DATA *887878788887877A*
EN H=H+2^F	318 DATA "352463457678789F"
330 NEXT E :: Y=Y+I :: K(X,Y)=H :: H=0 :: NEXT E :: NEXT D :: Y=0	328 DATA 4567687679657434
340 PRINT #2:CHR\$(K(X,1));CHR\$(K(X,2));CHR\$(K(X,3));CHR\$(K(X,4));CHR\$(K(X,5));CHR\$(330 DATA *574687678564220E* 340 DATA *ECCECDECDECDECDE*
$R_{(K(X, \delta))}$ (HR_{(K(X, 7))} (HR_{(K(X, 8))}) (HR_{(K	350 DATA "ABUCEFABODEFABOD"
350 NEXT C :: NEXT R :: PRINT #2:CHR\$(18);CHR\$(13):: CLUSE #2 :: CLOSE #1 :: CAL	360 DATA "ACEACEALEACEACEA"

378 DATA "FACEFACEFACEFACE"

Insert lines 32000 - 32060 (Sub Dump) here

R\$(K(X,6));CHR\$(K(X,7));CHR\$(K(X,8)); 350 NEXT C :: NEXT R :: PRINT #2:CHR\$(18);CHR\$(13):: CLUSE #2 :: CLOSE #1 :: CAL L_SOUND(1880,523,8):: PRINT "FINISHED"

LINES TO SAVE GRAPHICS

٠. ×

Type these lines into your graphics program. They will be used by the line you added in the operating portion of the program (CALL DUMP) to save the screen and characters onto cassette tape.

32000 SUB DUMP :: FOR R=1 TO 17 :: FOR C=1 TO 32 :: X=X+1 :: CALL GCHAR(R.C.Y):: CALL HCHAR(R, C, 42) :: 1F X=224 THEN GOSUB 32050 32020 A\$=A\$&CHR\$(Y):: NEXT C :: NEXT R :: GOSUB 32050 :: GOSUB 32050 32030 FOR R=32 TO 143 :: CALL CHARPAT(R,A\$):: IF (R-31)/11=INT((R-31)/11)THEN PRINT #1:A\$ ELSE PRINT #1:A\$. 32040 NEXT R :: CLOSE #1 :: SUBEXIT 32050 IF S=0 THEN S≖1 :: OPEN #1:"CS1",INTERNAL,FIXED 192,OUTPUT :: R=0 32060 PRINT #1:SEG\$(A\$,1,190):: A\$=SEG\$(A\$,191,66):: X=LEN(A\$):: RETURN :: SUBEND

SUB DUMP will remove the characters from the screen until it has the first seven rows. It will then open the cassette. The screen will scroll upward as the instructions built into the 99/4(A) appear. Save the data that is output on a tape for loading into the SCREEN/DUMP program (once saved, you can use the data as many times as you want without going throught this output section). The first 5 outputs will save the screen and the next 11 outputs save the character patterns (17 outputs in all). After the outputs, READY will appear at the bottom of the screen and you, can run SCREEN/DUMP.

USING THE GRAPHICS DATA

Load and run the SCREEN/DUMP program. It will immediately open the cassette to input the data saved from your graphics program. Position the data tape for this input (ten seconds of blank tape must be read first, just as it was output). As the data comes in, it will reconstruct the screen and then change the character patterns.

<u> DELAWARE VALLEY USERS GROUP - PAGE 9</u>

DISK VERSION:

100 !SCREEN/DUMP - COPYRIGHT 1983 EXTENDED SOFTWARE COMPANY; INSPIRED BY ED YORK 110 DIM K(112,8) 120 FOR A=1 TO 8 :: K(0,A)=255 :: NEXT A 130 FOR A=2 TO 112 :: K(A, 1) =-1 :: NEXT A 140 H\$="123456787ABCDEF" :: B\$=RPT\$("0",16):: C\$=RPT\$("F",16) 150 CALL DELSPRITE(ALL):: FOR R=1 TO 14 :: CALL COLOR(R,2,8):: NEXT R 160 OPEN #1: "RS232.BA=4800.DA=8.CR", OUTPUT 170 FOR R=1 TO 256 :: PRINT #1:CHR\$(0);:: NEXT R :: PRINT #1:CHR\$(13);CHR\$(10) 180 PRINT #1:CHR\$(27);CHR\$(65);CHR\$(8);!SET DISTANCE BETWEEN LINES 190 PRINT #1:CHR\$(27);CHR\$(79);!TURN OFF SKIP PERFORATION 200 FOR R=1 TO 24 210 PRINT #1:CHR\$(13);CHR\$(10);RPT\$(" ",24);CHR\$(27);CHR\$(75);CHR\$(0);CHR\$(1); 220 FOR C=1 TO 32 230 CALL GCHAR(R,C,X) : CALL HCHAR(R,C,42) : X=X-31 : IF X(1 THEN X=1 :: GOTO 3 00 240 IF K(X,1)(>-1 THEN 300 ELSE CALL CHARPAT(X+31,A\$) 250 IF A\$=B\$ THEN X=1 :: GOTO 300 260 IF A\$=C\$ THEN X=0 :: GOTO 300 270 G=0 :: FOR A=15 TO 1 STEP -2 :: B(0,G)=POS(H\$,SEG\$(A\$,A,1),1):: B(1,G)=POS(H \$,SEG\$(A\$,A+1,1),1):: G=G+1 :: NEXT A 280 FOR D=0 TO 1 :: FOR E=3 TO 0 STEP -1 :: FOR F=0 TO 7 :: IF (B(D,F)AND 2^E)TH EN $H=H+2^{F}$ 290 NEXT F II Y=Y+1 :: K(X,Y)=H II H=0 :: NEXT E :: NEXT D :: Y=0 300 PRINT #1:CHR\$(K(X,1));CHR\$(K(X,2));CHR\$(K(X,3));CHR\$(K(X,4));CHR\$(K(X,5));CH R\$(K(X,6));CHR\$(K(X,7));CHR\$(K(X,8)); 310 NEXT C :: NEXT R :: PRINT #1:CHR\$(10);CHR\$(13):: CALL SOUND(1000,523,0):: CL OSE #1

Lines 230 Tape / 190 Disk: Turn off Skip Perforation

If you've got a Skip Perforation command, the printer skips one inch (6 lines) at the top of the page, then will print 54 lines, skip 12 more lines (6 at the bottom, and 6 at the top of the next page, etc.) leaving one-inch margin space at top and bottom of all pages. Using continuous or non-tractor feed paper, or for cases where print cannot be interrupted (like a screen dump, needing tightly connected text, as opposed to a listing, for instance), Gemini/Epson and compatible printers use these lines, to shut off any automatically-set Skip Perforation command. Another way of saying it could be I PRINT #X: J CHR\$(27);"0";

Some other printers don't perform a Skip Perforation; in which case you could !REM or ignore this line. You may want to experiment. SAVE the version that works for you.

P.S. Not shown here: Gemini/Epson SETS the Skip Over Perforation command by using CHR\$(27);CHR\$(78);CHR\$(12);

Lines 250 Tape / 210 Disk: Finish one Line, Start Next

Normally the printer finishes one line, starts a next (Did you recognize CHR(13) as the (ENTER) Call Key?), and then drops one line before printing. That's a Line Feed - CHR(10) and Carriage Return - CHR(13). You won't need to fool with this unless you overprint or get blank lines.

The RPT\$ in the middle of the line is interesting.

Using this line as written produces a centered screen dump, in the middle of the page (24 blank characters, then 32 columns of screen, then another 24 blank = 80 printer columns. See the next two lines.) To start a screen dump at the extreme left of a page, OMIT the RPT\$ string part-

Why not do a Wide Dump, in which you can expand your screen dump across the entire 80-column printed nage?! Do so by deleting the RPT\$ string and add line 205 (Tape), or 165 (Disk) to read: PRINT #1:CHR\$(14); (for the Gemini/, - Note! No CHR\$(27) - or PRINT #1:CHR\$(31); (Okidata 92), or PRINT #1:CHR\$(27);CHR\$(81);CHR\$(1); (for the Panasonic KX-P1091), etc. This is called Enlarged or Expanded type, if you're trying to find your manual reference.

The rest of the line tells the printer to send 8x32 or 256 graphic characters. Unfortunately, other printers could get as exotic as CHR\$(83);CHR\$(48);CHR\$(53);CHR\$ (54); after the CHR\$(27); Escape command. ASCII values of 2 5 6 are, of course, 50, 53, and 54. If you get the idea, check your printer manual for the Decimal/ASCII command.

Jim Schwaller's 8-page documentation for TAPE or DISK version helps! Write to DVUG, PO Box 6240 Stanton Branch, Wilmington, DE 19804-9998, specify version, be polite!

Lines 310 Tape - 270 Disk: Invert Print Characters

C.Itoh/NEC ONLY: Use G=7 and G=G-1 instead of G=0 and G=G+1 as G values at the start and end of this line. Inverted C.Itoh/NEC characters are the reason they are not included as available printers for the more recent graphic software. This change resolves the screen dump inversion.

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There are several sources to which TI owners can turn for TI software, aside from the presentation at their own User Group meetings, their software library, and downloads from the club BBS system. Here are some:

NEWSLETTERS (Thickest and most varied)::

Chicago TI-99/4A Users' Group, Inc., Membership Chr., P.O. Box 578341, Chicago, IL 60657 - \$21/Yr. for 10 monthly issues, including huge Super Summer Issue, Lifetime access to BBS; Software Library privileges.

LA 99er Computer Group TOPICS, P.O. Box 67A79, Los Angeles, Ca 90067-1079 - \$20/Yr. for 12 issues and other member privileges. (See LA Library item on page 1 of this issue of THE DATA BUS.)

MICROpendium, P.O.Box 1343, Round Rock,TX 78680 - \$20 for 12 issues Second Class Mail. Best with current info! Letter & programs, articles, latest advertisements, etc.

COLLENTIG IS WORTH KNOWING ABOUT:

AMNION HOTLINE, Dr. Guy-Stefan Romano, 116 Carl St., Sar Francisco, CA 94127 (415) 753-5581 9 a.m. - 4 p.m. Mon. through Sat. WCIFIC TIME or send a Self-Addressed Stamped Envelope for answers to just about anything related to the TI-99/4A. Huge library of public domain software available at nominal cost, helping TI users since 1981.

(copy of any of her many programs if you send \$3, plus tape or disk, SASE and a mailer, specifying your preference. A preliminary SASE and \$1 gets a printed catalog; add \$1.50 for shipping/handling per order. TIGERCUB Software, 156 Collingwood Ave., Columbus, OH 43213. Jim Peterson has marvelous educational and utility software programs. Send \$1 for catalog; deductible from a subsequent order.

GENIAL TRAVelER's Diskazine, issued by Barry Traver, 835 Green Valley Drive, Philadelphia,PA 19128, irregularly but sold as a six-set disk subscription annually. Filled with programs, articles and enhanced utility routines. \$36

COMPUTE! 825 7th Ave., New York, NY 10019, (800) 346-6767 or (212) 887-8525 has 10 books of software for the T1 including one sold with disk programs. Most around \$14.95 price; best reference - Regena's GUIDE TO THE T1/99-4A.

SAMS, 4300 W. 62nd St., Indianapolis,IN 46268 carries TI software book listings with tape backup, plus a series of more technical TI-99/4A, printer, etc. reference works. Call (800) 428-SAMS.

FOR ECLECTIC READERS:

COMPUTER SHOPPER, P.O. Box 1419, Titusville,FL 32781-9998, (800) 327-9926, \$2.97 on newsstands but cheaper with subscription, carries over 500 pages monthly including TI columns of both general news and TL Forth, plus User Group and BBS listings, every type of hardware and accessory ad imaginable (not just for the TI).

TENEX Computer Express (The Everything Book), P.O.Box 6578, South Bend, IN 46660 has toll-free Order line, plus Product Information, Technical Line, and Order Status Line to assist with other needs. Catalog includes software and virtually all peripheral needs - hardware, monitors, books and cables, printers, electrical switches, etc. As opposed to TRITON which carries predominantly (but not only) older TI cartridges.

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