



DECUS 12 BIT SPECIAL INTEREST GROUP
NEWSLETTER

July

Number 35

1979

Contributions and correspondence should be sent to: Robert Hassinger, Coordinator
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(Please include reference to Newsletter number and page when inquiring about material
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NEWSLETTER SUBMISSIONS

The Newsletter is currently published bi-monthly in the odd months. The deadline for each issue is the last Friday of the preceding even numbered month. Submissions are accepted at all times and are normally used in the next issue to go to press regardless of date of receipt. The deadline for ready-to-use material for the next Newsletter is 31-August-79. Material requiring editing/re-typing should be in earlier. Ready-to-use material should use an area 7 inches (18 cm) wide by no more than 9 inches (23 cm) long on each page. It should be single spaced on white bond paper whenever possible and must be reasonable clean, legible and sufficiently dark for good photographic reproduction.

Material submitted in machine readable form is particularly desirable because it can be edited and incorporated into the newsletter format more easily. Higher quality reproduction is also possible this way. Contact the editor (Bob Hassinger) for further details on acceptable media and formats if you plan to make a submission on machine readable form.

HIGH SCHOOL NEWS

I recently received a copy of the Upper St. Clair High School COMPUTER NEWS for June 1979. It contains information about several interesting items. One of them is a fairly extensive "Electronic Gradebook" program package. Another is a series of patches for Educomp BASIC that were developed by 10th grader Russ Segal. He has added several nice features and enhancements. The school is at 1825 McLaughlin Run Road, Upper St. Clair, PA 15241.

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Send copies of software you wish to exchange at the next US Symposium to one of the following committee members for preparation:

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FROM EARL ELLIS

"I recently realized that I hadn't received any DSN's (Digital Software News) for my PDP-8 system since December 1978. I began investigating, and now have all back issues and I'm told I'll be on the list until 1999. What I found out is the two people your Local DEC Rep. should contact in Maynard: Marge Lasage at ext 5891 will get your name and address on the list; to get any issues that you missed, the contact is Jane McDonald at ext 9655. Neither of these two would talk with me, but my Local DEC Rep used them to great success.

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"I've also heard that as of 1 July 1979, the PDP-8 is 100% under the TPL group at DEC. DEC must think, still, that the PDP-8 will die. I see the next real crunch as December 31, 1999.

"I'll distribute (for Media and return postage) the current TECO that was available in New Orleans at the Spring DECUS. The source is in MACREL Version 3. I have both TD's and RX's for swap. A Binary is a 6-bit floppy, the Source (MACREL V3) is a 8-bit floppy, a DECTape, or 2 6-bit floppies. I use DeWar's 8-bit handler. See page 2 for my address."

NOTE FROM GARY COLEMAN

Gary wrote with the following comments on Bill Haygood's recent article: "A few thoughts on Bill Haygood's triple density floppy in #33.

"The old 'turn-the-floppy-over' (the flippy disk) which he's using is an old trick hobbists have been using for years. Floppies are coated magnetically and formatted on both sides, so it's possible to fit twice as much data on the same disc without changing anything. The rest of the increase could be due to using 8-bit mode. Haven't spoken to B.H. but I've heard that he at least uses the double sided idea.

"Hobbyists have discovered that the 'flippy' is a two-edged sword. You can get twice the data on the disc, but pulling a disc out and turning it over is about the same amount of effort as putting in another disc, and reliability suffers as well under some circumstances.

"First, the 'write through' problem, where writing data on one side affects data on the other side. This used to be a big problem, but the newer discs are better made to avoid this problem. It still happens, though.

"In addition to this, there is a wear problem. The disc is held up against the head by a pressure pad that collects dirt. When you flip the disc over, you expose your newly recorded data to this abrasive element. This can cause real problems, since the data doesn't go away all at once.

"Okay, now to be fair, there are cases where this will work and is superior to other things. It would be great for an archive disc on which you stored sources or other rarely accessed data. It would be very prudent to verify the data on the disc before archiving it. I can see how this could dramatically reduce the number of floppies you'd need to have around. So the idea does have its place. Just be sure the other 12-Bitters know what they're in for.

"Now, any TC01 gurus out there? I need some help to get it going again."

Gary is at 24451 Lakeshore Blvd., Apt 1503W, Euclid Ohio, 44123 - phone (216) 732-8458 (home) or 368-2984 (work).

FOTP BUG REPORT

Aaron S. Weg sent a copy of an SPR he submitted recently on FOTP. He says "FOTP (from OS/8 V3D) returns an error message of 'directory bad' when there is a valid directory on the device. The problem occurs in an instance where there are no extra empties at the end of the sixth extent of the directory and there are also no empties in the middle of the directory. Problem usually occurs after doing a SQUISH with PIP or

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DECsystem-8 SQUASH, followed by copying additional files to the device."

The temporary bypass he suggests is as follows: "Run the system program PIP and delete any file from your device, then SQUASH the device. PIP seems to recognize the directory as a valid directory and will delete the file and the SQUASH will make the directory valid for FOTP by leaving space at the end of the device."

Mr. Weg is Vice President of Data Systems, Inc., 6 Pinewood Drive, Monsey, N.Y. 10952 - phone (914) 352-1698 or (212) 737-3748.

LSD-8

Eli Gilbert sent a copy of the writeup for a software package called LSD-8 that he is marketing. It is a collection of subroutines and utilities for creating and monitoring large databases on the PDP-8. The system can be used under OS/8 and under RTS/8 in both foreground and background. It can be called using FORTRAN II, SABR, and PAL-8 code.

The writeup describes the package capabilities as follows: "LSD-8 allows the simple, rapid implementation of large database systems. In each of its operating environments, it provides random indexed access to up to 16 million words with no more than five one-block disk reads.

"Three subroutine calls or task requests deliver to the programmer the power of LSD-8. In FORTRAN II, the first is

```
CALL SPACE (IPP, ISIZE, IPT)
```

SPACE maintains a chain of empty blocks of six different sizes.

"When called with IPP=0, SPACE pops an empty record from the chain (makes an empty record available to the calling program), returning a two-word disk pointer in IPT. The record size is specified by ISIZE:

ISIZE	Record Size
1	256 words
2	128
3	64
4	32
5	16
6	8

If SPACE is called with IPP=1, the record is pushed onto (added to) the empty chain.

"The second call is

```
CALL PGA (KEY, KFUN, IPT, ISTAT)
```

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This routine, named PGA for Put-Get-All, locates a record in the database using its four word key. KEY can be any collection of 48 bits, but sixbit ASCII codes are most common.

KFUN	PGA Function
-1	Delete a record from and rebalance index.
0	Lookup the key and return the pointer of the associated record in IPT.
1	Insert a record (whose key is in KEY and whose pointer is in IPT) into the index and rebalance it.

ISTAT returns the status of the operation. If ISTAT is negative, a system failure has occurred. On lookup, ISTAT is zero if the record has not been found; it is one if the record has been found.

"The third subroutine call

```
CALL XBLOK (IBUF, IPT, NW, IRW)
```

reads or writes NW words of data between memory (starting at location IBUF) and the disk (starting at the 2-word pointer IPT). IRW specifies the direction of transfer:

```
IRW=0  selects a read of the disk,  
IRW=1  selects a write of the disk."
```

For further information, contact Eli at Interactive Elements Incorporated, 76 Beaver Street, New York, New York 10005 - phone (212) 425-6220.

NOTE FROM JOHN H. DAVIDSON

The following note was forwarded by Ernst Lopes Cardozo (whose new address is Westvries Computer Consulting, Lekbandijk 11, 4119 RA Ravenswaay, Holland. Tel. 03452-202). "The Department of Applied Mathematics and Theoretical Physics at Cambridge University has developed a series of 35mm, instant Polaroid, cine and video camera systems for use with colour and monochrome DEC graphics displays. The essence of these systems is the creation of a "mini-studio", by means of optical hoods, thus obviating the need for tripods, black-outs and generally time-consuming setting up procedures.

"The 35mm and instant Polaroid systems employ fiberglass handheld, optical hoods, moulded to fit each display, with the camera mounted behind the hood. The whole system is held (in the manner of a sub-machine gun - excuse the analogy) by means of two pistol grips supporting the hood and the camera. The shutter is actuated by means of a trigger. Polaroid prints are extremely clear and of high resolution, in colour or black and white.

"The video and cine systems employ a multi-lens, variable image magnification mount with potential for use of a zoom lens. The hood is aluminium and is pivot-hinged to the display casing (four small bolt holes are required), providing an "instant" setting up procedure - the camera, hood and mount, previously set up, are simply placed in position on the pivot blocks and powered up.

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"A variety of video cameras are employed - from 2/3", 550 lines resolution, surveillance type to very high resolution broadcast standard caption cameras. The cine camera used is a Bolex.

"Systems can be made for other users on request. Full details are available from John Davidson at the University of Cambridge, Department of Applied Mathematics and Theoretical Physics, Silver Street, Cambridge, England, CB3 9EW. Telephone Cambridge (0223) 51645."

NOTE FROM ROLF B JOHANNESEN

DECUS forwarded the following note from Rolf B Johannesen: "There are 128 PDP8E Group 3 instructions (if INST .and. 7401 = 7401, the instruction is Group 3).

"If an extended arithmetic element is present, these 128 instructions may be executed in either MODE A or MODE B. The instructions may be classed as follows:

1 word in either mode	25
2 words in either mode	56
1 word in MODE A, DPSZ included* in MODE B	8
2 words in MODE A, 1 word in MODE B	39

(* 7451 is DPSZ. There are seven other instructions which act as microprogrammed combinations of DPSZ plus another function.)

"The last class offers a convenient way of distinguishing between modes, for example, in a subroutine which must execute in a particular mode but must restore the original mode before returning. (Note-- DEC supplied EAE floating point packages do not do this. If called while in MODE B, they will give disastrous results.)

"A useful example is the following:

```
1. Save step counter if required
   7623
   JMP  MODE B
   JMP  MODE A
```

In MODE A, 7623 is interpreted as CAM followed by SCL, a two-word instruction. The SC is loaded from the next word in memory (which may be a JMP instruction) and execution resumes at the second word following. In MODE B, 7623 is interpreted as CAM followed by ASC, a one-word instruction which clears the SC and execution resumes at the word following the instruction. In either case, AC and MQ are cleared; the link is not affected.

"Most of the 128 possible instructions are given in the DEC handbook or are interpretable as microprogrammed combinations of these, but some are still mysteries to me. One that might be useful and is not described is 7443 in MODE A. This appears to function as SCL followed by a swap of AC and SC. 7463 and 7543 appear to function as above plus MQL and MQA, respectively."

(One factor to consider in the question of what undefined MODE A instructions do is that MODE A EAE options exist for nearly all PDP-8 and PDP-12 machines. Each implementation of the EAE may do different things in these cases. Note also that the extra instructions added when the PDP-8e came out are reached by using previously undefined instructions. In other words, use of undefined instructions (and irrational

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combinations like RAL RAR) can be hazardous to the portability and longevity of your code. - RH)

Mr. Johannesen is with the National Bureau of Standards in Washington, D.C. 20234.

HELP: KT8/I DOCUMENTATION

R. C. Selby writes: "I have a PDP-8/I that has the 'Time Share' option fitted. The KT8/I does not work however because one or more boards are missing, and since I don't have a manual for it I am unable to repair it.

"I have telephoned DEC asking for a quote for the documentation but they say they have no knowledge of any, so would it be possible for you to publish a request for help in the next Newsletter?

"I also remember reading in the 12 Bit SIG Newsletter about an optimizer for the FORTRAN IV compiler, is it going in the library and if so when?"

(At the moment, I cannot recall the status of the FORTRAN IV optimizer, does anyone know what it is? As to the KT8/I, there is (or was) a maintenance manual for it that was a few pages long. Installation was simple, involving a very few cards and a few wires, I think. You do have to have a CPU with a serial number above 925 or thereabouts, however. The secret, as always with DEC, is to talk to the right person. The most likely one to know about something like this is someone in Field Service who specializes in the older 12 bit machines. If I did not know who this was in my area, I would start by calling the manager of my local Field Service office and enlisting his aid. For the most part, I find DEC Field Service people more than willing to help in any way they can with things like this. Particularly helpful with this sort of question are the 'old-timers' who grew up with the older machines. - RH)

Mr. Selby's address is Flat 1, 8 Larpent Ave., Putney, LONDON, ENGLAND.

MULTOS/8 to support 16 terminals on a single PDP-8

The MULTOS/8 PDP-8 timesharing executive is undergoing a total rewrite and Version 2 should be ready about 1 September 1979. The new version will contain much more support for a wider variety of equipment than does the current version. Support is planned for the following system devices: RK05 disk, RLO1 disk, RF08 disk, RK08 disk, Pertec disk and System Industries disk. Support is planned for the following non-system devices: RK05 disk (up to 4 drives), RK8L disk (up to 8 drives), RLO1 disk (up to 4 drives), RK08 disk (4 drives), System Industries disk drives, Pertec disk (4 drives), RF08 disk (4 drives), DF32 disk (1 drive + up to 3 DS32 drives), RX01 floppy disk (12-bit mode, 6 drives), RX01 floppy disk (8-bit mode, 6 drives), RX01 floppy disk (8-bit 'HUGE' mode, 6 drives), RX01 floppy disk (8-bit 'BIG' mode, 6 drives), TC08 DECTape (8 drives), TD8E DECTape (8 drives), DECassette (8 drives). Support is planned for the following non-file structured devices: TTY (up to 16 terminals) (handlers for KLSA multiplexor interfaces, KLSE or KLSJA interfaces, Data Logics 8-terminal quad module multiplexor interface and Computer Interface System's 8-terminal multiplexor interface), PCSE paper tape reader/punch, CR8E card reader, DECassette (8 drives), TMS Mastape (8 drives), four different line printer handlers for DEC standard printers, Data Printer printers, odd balls that are driven from a KLS-JA type interface and one for printers that transfer XOF/XON characters.

Anyone desiring information on the current or new release of MULTOS/8 is invited to contact Bill Haygood by calling 801-942-8000 or writing to COMPUTER METHODS, 7822 Oakledge Road, Salt Lake City, UT 84121.

'Debugging Statements' in OS/8 Fortran IV

PDP-11 Fortran IV includes a 'Debug Statement' indicated by a D in the first column. This is treated as a comment except when compiled with a special switch. I have devised overlays for the V3D versions of F4 and PASS3 which achieve the same result. F4 is increased by 1 page (in field 2 at present) and PASS3 is extended by 1 page. PASS20 has to be patched to pick up the extra length of PASS3 and FLIST (if used) has to be modified both for the extra length of PASS3 and to accept the /D switch.

The system is in the 'field-testing' stage at the moment, but is performing satisfactorily so far. I will submit the overlays to DECUS eventually, but anyone who would like to try them should contact me at (613) 993-9880 or at the address below.

Ian Templeton
 Division of Physics
 National Research Council of Canada
 Ottawa, Canada, K1A 0R6

BATCH fails to recognize LA180 Decprinter?

When BATCH is run without /T, or in my modified version (Newsletter #26, p. 46) with /L, the presence of a lineprinter is tested by a subroutine at 1517. A space (240) is sent to device 66, and after a delay of 11.4 μ s (3x 'AND I O') the flag is tested. If it is not found, the BATCH log appears on the terminal. The 11.4 μ s is long enough for a Centronics printer, (10.2 μ s OK, 9.0 μ s too short) but appears to be too short for the LA180 in a colleague's installation. The patch to BATCH.SV given below solves the problem by increasing the delay to 47.8 μ s:

			/Enter with AC=0, LK=1
1523/0400	7004	RAL	/Shift bit left
1524/0400	7420	SNL	/Exit when it reaches link again
1525/0400	5323	JMP.-2	

There may of course be a problem associated with that particular LA180. Has anyone else had similar trouble?

I.M. Templeton
 Division of Physics
 National Research Council of Canada
 Ottawa, Canada, K1A 0R6

An Excess PDP-8/A

Dear Bob:

We have an excess PDP-8/A which may be of interest to the 12-Bit community. The particulars on it are as follows:

PDP-8/A-400BP Serial # 0301663
 with 32K core memory (on two 16K modules)
 DKC8-AA I/O option module.
 KMS-AA extended option module.
 2 KL8-A Asynchronous serial line multiplex interfaces.
 BC08W 25-ft EIA cable for use between KL8-A and four EIA RS-232-C type devices.

We will consider selling or trading of the individual parts. Interested parties may contact Bill Haygood at COMPUTER METHODS, 7822 Oakledge Road, Salt Lake City, UT 84121, telephone 801-942-8000.

Robert Hassinger - Coordinator, 12-bit SIG
c/o DECUS MR2-3/E55
One Iron Way
Maynard, MA 01752

Dear Bob:

This is a request for help. I have an original discrete component PDP-8 with 12K memory and an ASR-33 Teletype. In order to expand my system I decided to use the standard DEC options described in the PDP-8 Users Manual. I purchased a Digitronic High Speed Paper Tape Reader and from another source the associated DEC interface logic mounting panels, which are also common with several other options that I want to implement. I wrote to DEC for technical information, but my letters have not even been acknowledged, which is the reason I am appealing to the 12-bit SIG Newsletter readers for help.

I need a copy of the DEC Instruction Manual for each of the following:

- Type 750C High Speed Reader
- Type 350B Incremental Plotter
- Type 34D Oscilloscope Display
- Type CR01C Card reader

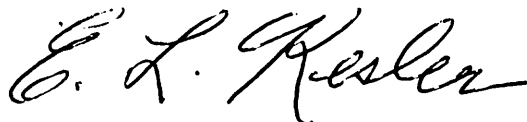
I would like to buy, or borrow for about a week, an original or a good complete copy of the manuals. I will be glad to pay all mailing costs, including postage on letters concerning availability of any of the manuals.

Since I have noticed that some previous Newsletter correspondents have indicated switching to PDP-11 systems, they may be willing to sell their copies of the small DEC books which were printed when the 'Straight-Eight' first came out. I would specifically like to get an early copy of each of the following:

- Small Computer Handbook
- Logic Handbook
- Control Handbook
- Industrial Handbook
- Programming Languages
- Introduction to Programming

I did get a Small Computer Handbook, Logic Handbook and Introduction to Programming from DEC but they are much later editions written primarily for the PDP-8E and, since I am still fairly low on the PDP-8 programming 'learning curve', small differences tend to confuse me. Any help will be greatly appreciated.

E. L. Kesler (DD 10521)
4405 Roundhill Road
Alexandria, VA 22310



C O M P U T E R M E T H O D S
7822 Oakledge Road
Salt Lake City, UT 84121
Phone 801-942-8000

Jun.30, 1979

Mr. Bob Hassinger - Coordinator, 12 Bit SIG
Liberty Mutual Research Center
71 Frankland Road
Hopkinton, MA 01748

Dear Bob:

Thank you for your letter of June 22nd. It arrived yesterday just after I sent you another submission for the Newsletter. I will endeavor to answer your questions concerning the 'HUGE' (named with tongue-in-cheek) floppy.

Regarding the 79 tracks that I mentioned I was putting on the HUGE floppy versus the 77 tracks that DEC uses on their standard floppy, I can say that I discovered that my AED drive will read/write tracks 0-78 (total = 79). When I tried the 79-track diskettes on a DEC RX01, I discovered that the RX01 would NOT read the last two tracks. The IBM standard calls for 77 total tracks on a diskette numbered 0 through 76. The DEC 12-bit mode RX8E handler uses tracks 1 through 76 and skips track 0 altogether. That does make sense since the use of another track would foul up the algorithm that converts the logical sector number to a physical track and sector. Since the extra two tracks cannot be used except on my equipment, I have discontinued writing them with my formatter program. I am now writing only tracks numbered 0 through 76.

I should mention that there is nothing magical in adding extra storage capacity to the diskette as I have done in the HUGE floppy. Anyone can do it if their floppy drive can format diskettes with a variable number of sectors per track. I have written a program for the AED floppy drive that will format a diskette in virtually ANY format desired. I discovered (quite by accident) that a track will hold more than 26 128-byte sectors if the number of intersector zero bytes is reduced. Since the AED hardware writes a minimum number (17) of intersector zero bytes, I have not been successful in getting more than 30 128-byte sectors on a track. To simplify the software logical to physical track/sector algorithm, my AED formatter program also will interleave the floppy sectors as they are being written. On HUGE-formatted floppies, they are interleaved 3:1. Since they are interleaved during the formatting process, it becomes understandable why HUGE floppies perform slower when accessed by the standard DEC 12-bit handler. On a HUGE floppy, the sectors are numbered (in decimal) 1, 11, 21, 2, 12, 22, 3, 13, 23, ... 10, 20, 30. When the DEC 12-bit handler accesses a standard floppy, it accesses sectors in the following sequence: 1, 3, 5, 7, etc. On the HUGE floppy, sector 3 is physically 6 sectors after sector 1. By the way, since the RX01 will access all the HUGE floppy sectors without difficulty (even sector numbers 27 through 30), the RX01 manual is incorrect when it states that if the sector number is out of range (?), an error will be returned. I have tried, unsuccessfully, to get a 2:1 interleaved HUGE floppy to work on the RX01. Even though the software write routine is definitely faster than the software read routine, the RX01 will make a full revolution before writing a sector when the diskette is interleaved 2:1. During reading, however, the RX01 has no trouble with the 2:1 formatted diskette (and is that transfer ever FAST!). As an additional contribution to speed, my AED formatter will also allow a specification for track-to-track sector offsets. I have found that a 7-sector offset works really well. This only means that when the floppy head moves from one track to the next higher numbered track, the first sector to move under the head after settling is sector 1. By way of contrast, on IBM standard formatted diskettes, the first sector on ANY track after the index mark is sector 1. Of course, an effective offset can be handled in the software (Stewart Dewar is doing this in his newest 8-bit mode RX01 floppy handler). As a final contribution to high capacity on the HUGE floppy, the diskette is accessed in 8-bit mode (allowing 10 decimal OS/8 blocks per track—hence 770 OS/8 blocks per side and 1,540 OS/8 blocks per diskette).

In answer to your last question, Bob, the handler that I am using is taken from Stuart Dewar's RX8 8-bit RX01 handler (with his permission) in which he chose the names R0: and R1: for the handler names. Rather than change the symbols, I just took the lazy man's route and changed only the header block information. I did not use his extremely fast divide routine for computing the physical sector/track from the logical sector number. I asked the question: why do the full computation every time for every physical sector/track to be read/written? Why not just compute it once at the beginning of the transfer (when one can afford to waste a little time), and then after that, just update the physical sector/track numbers with a minimum of effort (and minimum time, also). If one is concerned about space, then other approaches would, of course, be perfectly valid.

Bob, the above rambling pretty much covers my knowledge of the why's of the floppy diskette world. If you can use any of it for the Newsletter, please feel free to do so. It does explain why I took the approach that I did in the HUGE floppy. I would welcome comments and suggestions. It is my feeling that no matter how well something is done, there is always a better way of doing it.

Thanks again for your letter (for it is truly a pleasure to hear from you). From the mountain West, I send my best wishes to you and your family.

Sincerely,

†
W. F. HAYGOOD, JR.

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NUMBER 35 JULY 1979

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ANNOUNCEMENTS:

As you all now well know (well, you have been reading this article, haven't you?) we have had the privilege of providing you with the official DEC PATCHES to VERSION 8.00 of COS-310. So far we have printed PATCHES PT01 through PT03. Appended to this issue are PATCHES PT04 and PT05 (both dealing with the rather excellent features of the MENU Utility of COS-310).

Commencing with this issue, we are also publishing the PATCHES TO VERSION 8.01. PATCH PT01 to VERSION 8.01 IS IDENTICAL TO PT05. Please see the discussion of the patch, with the PATCHES.

Notwithstanding our protestations, and cries of agony, and predictions of all types of woe to fall upon the House of DEC, the PATCHES for VERSION 8.00 and for VERSION 8.01 are going to have similar numbers so that extreme care will have to be taken in creating your PATCHES, especially with those of you who happen to be using both versions. (E.g., PT05 to VERSION 8.00 is identical to PT01 to VERSION 8.01. So, please use care. We will try to keep you well advised of the proper version in each of our publications.)

WORD PROCESSING HINTS COLUMN

If the response to our offer to provide a HINTS column for users of DEC's various 8-based systems (e.g., WD-78; WD-80; WD-200; and the DS-310 series) is any indication of the need for such a column (like zilch) then we'll drop the subject. On the other hand, one more opportunity. (See issue 34 for the possibilities you are all missing out on.)

DEC STORE OPENS IN COSTA MESA, CALIFORNIA

DEC's latest in a growing chain of DEC STORES (which concentrate on the low end line of DEC's Word Processing Systems - the WD-78) had its grand opening on June 13, 1979. It was complete with all the trimmings, too. From beauty queens to politicians to the Chamber of Commerce (indeed!); everyone was there. It was quite an affair (this writer will go nearly anywhere for a free glass of wine, etc.) and the store is most impressive.

On hand (between the champagne glasses, etc.) were four WD-78s [as you know, the letter designation indicates whether it is licensed for data processing -- WD -- or only for word processing -- WS] with all the trimmings, including LQP (letter quality) and draft (LA 180) printers.

This Orange County store appears well situated to provide a much needed public exposure of the DEC word processing systems. Under the capable management of former DEC WP West Coast sales whiz kid, Jim Geer, the store is certain to make a substantial market impact on the area.

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COS-310 HINTS NOTEBOOK

In previous issues we have tried to provide you with several programming routines and techniques which simply are not available anywhere else. We hope to continue with this service, but it cannot be a one-way street. Besides, there is a limit to our own personal knowledge on these subjects. From the letters and calls we have received, we know that there are many of you who appear interested in the article. How about some contributions, then, to this column? Just send them to me at the address above, and I will be glad to print them. (Please, if you have a fairly long program or routine -- more than a page -- send us a diskette with the routine. We'll return it immediately.)

INSERTION OF SOURCE FILES BETWEEN ANY TWO CONSECUTIVE LINES

In issue 32 we discussed the fact that it is fairly easy to store favorite routines in a library type of storage, and to then append or insert the routines to any given program then under construction. We didn't tell you how to insert a fairly long routine between two given lines, or at a specific line. Having received several inquiries on the point, we now give up another of our long dark secrets involving DIBOL programming.

Recapping the technique set forth in issue 32, when you are working on a program and wish to append a source file, you renumber the program (e.g., RE 100,10) and determine where it then ends, e.g., say line 2240. Insert at the beginning of that program at any line prior to 100 the following; 0050 LN 100,10. Then file the program in a temporary file. FEtch your source file subroutine and renumber it so that it will be at the end of the program file (e.g., RE 2300,10 in the above example) and then give the command: BA tempfile. This will append the sub routine. (Conversly, renumbering the files properly, you could insert it at the beginning of the program or, if there were enough room, somewhere in between.)

There is, however, a very simple method for inserting a routine between any two consecutive line numbers.

After REnumbering your program file (that is an important step for this utility to work) ascertain the precise point at which you want to insert your new source file (or subroutine). Let's say, e.g., between lines 1830 and 1840. Enter your LN 100,10 command at, e.g., line 50 and WRite the program in tempfil. FEtch your subroutine and give it the following command: RE 1834,0. This will renumber the entire program in the buffer with the line number 1834. (Don't believe me? Try it!) Then BATCH tempfil. The entire subroutine will now be at line 1834, which is where you wanted it -- between lines 1830 and 1840. Of course this assumes that there is sufficient room in the buffer for the entire routine and the program. If not, you'll be told BUFFER FULL.

In order to edit the file, you will have to REnumber the file, as you cannot edit the new line 1834 until you have renumbered the entire file.

Now that you know that you can sever and store source files as subroutines, and use them at will, you can devise some form of bookkeeping routine to keep track of your subroutines, and be certain not to duplicate labels. (To our knowledge this routine

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has not been published before. Come to think of it, most of the routines we have published had not been published before.)

**HOW TO CHEAT THE BATCH COMMAND WITH PRINTED MESSAGES
WITHOUT THE PLEASE COMMAND**

How often have you wanted to put in more than one line of text in a BATCH command without having to use the PLEASE command (with that delightful buzzer) for each line and without requiring a separate program to do so? We often put in up to a full screen of text using our secret method. How? Next issue we will discuss this neat little procedure.

HOW TO SORT A FILE WHICH IS TOO LONG TO SORT

The COS-310 SORT utility is one of the fastest and sweetest sort programs available for any system. However, it requires at least three work areas of the same file size as the file being sorted to operate. When you are working with a full diskette as your source, there is no place to go for the additional room (whether you have two drives or four drives). The solution is quite simple. If we receive some interest we will discuss it in a following issue. (Hey, guys, we like to hear from you so we know that someone is reading this stuff. We also want to publish some of your ideas, so how about it?)

WHERE IS DEC'S "FASTER" WPS TO COS UTILITY?

For some time now, we have been told that DEC has an unsupported, but available, WPS to COS (i.e., Word Processing-8 to COS-310) file conversion utility which is significantly faster than its VERSION 1. After a telephone bill which tells me I should go out and find one commercially rather than chasing after the WPS people on the subject, and after several months of promises but no performance, we are all but about to give up.

Our generally reliable rumor mills advise us that DEC is considering providing a supported WPS to COS utility. Perhaps this may be the explanation for the many empty promises. Any assistance out there would be sincerely appreciated.

FROM THE MAIL BAG

Mr. Malcolm Simpson, Financial Director, GREGGS BAKERIES LIMITED, 1 Lambton Road, Jesmond, Newcastle Upon Tyne, NE2 4RX, ENGLAND advises us that his company is using 6 PDP-8s, operating under COS-300 (DIBOL V3.07G). Among other things, he has inquired as to whether there are any significant advantages with later versions of DIBOL. Mr. Simpson, the answer is YES! However, I am not aware of any multi-terminal support for current versions of DIBOL under COS-310.

Mr. Simpson advises us that his firm has transferred all large scale data entry onto Optical Mark Reading machines (mfg.d by Data Recognition Ltd., U.K.) to speed up input. They have programs to handle the acceptance of data from the machines and are willing to make them available to anyone who is interested. (Even at the slower rate of 2400 baud -- their PDP-8s won't accept the input at 9600 baud -- they are able to read a full page of data per second, resulting in a reduced input time of less than a third from that of V.D.U.s.

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He requests some assistance with respect to graphics presentation using his 200 LPM printers (we don't know which ones, however). Any information on how to get them to print out special characters, such as asterisks and other symbols, on a matrix of a page of printout would be appreciated.

SOUTHWEST MISSOURI STATE UNIVERSITY SEEKS COMPUTER SCIENCE FACULTY MEMBER

L.E. Banks, Head, Department of Physics, Southwest Missouri State University, Springfield, Missouri 65802, [417 836-5131] has written for assistance in seeking a qualified individual to head up a new program in computer science. It is anticipated that the new program will soon evolve into a separate department of Computer Science.

The Physics department will continue to share in the hardware portion of the program, with an emphasis in mini/micro computer systems. The appointment is for this coming fall, so anyone who is interested and who feels that he/she has the necessary qualifications to undertake this new responsibility, with what appears to be a potential for a Department Head, may obtain complete details directly from Professor Banks.

PATCHES PT04 AND PT05 (VERSION 8.00) AND PT01 (VERSION 8.01) DIBOL

PLEASE READ THIS CAREFULLY - WE DON'T WANT ANY MISTAKES:

DIBOL V 8.01 is identical to V 8.00, with the exception of the RL01 handlers. However, the PATCHES are being numbered sequentially for V 8.01, commencing with PT01, and may be confused with those for V 8.00. Please be careful. We will try to remind you in each presentation.

Also, please remember that before installing any PATCH, be darned sure that you have installed the prior patches. (All have been published in this Newsletter.)

DO NOT TRY TO INSTALL A PATCH IF YOU RECEIVE A BAD CHECKSUM DURING THE TRIAL

VERSION 8.01 - PATCH PT01

Please note that PATCH PT01 for VERSION 8.01 is identical to PT05 for VERSION 8.00. If you are an 8.01 user, and wish to install the PATCH, please simply substitute the word "PT01" for "PT05" in PATCH PT05 (which is the last one).

Until next issue, then.

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0100 PT04

0110

0120

0130 TITLE: INCORRECT PARSING OF MENU COMMAND FILE

0140

0150

0160 PROBLEM: WHEN EXECUTING MENU WITH A DISPLAY SECTION SMALLER
0170 THAN 256 CHARACTERS, ERROR MESSAGES MAY BE DISPLAYED.

0180

0190

0200 MENU

0210 1

0220 255

0230 7301

0240 END

0250 6261

0260 END

0270 /X .

0280

0290

0300 SOLUTION:

0310

0320 THE FOREGOING PATCH TO MENU CORRECTS THE PROBLEM.

0330

0340

0350 CAUTION:

0360

0370 BE CERTAIN THAT ALL PRIOR PATCHES HAVE BEEN INPUT
0380 BEFORE ATTEMPTING TO PATCH TO MENU - SEE PRIOR ISSUES

0390

0400 INSTRUCTIONS:

0410

0420 1. CREATE A PATCH COMMAND FILE (PT04) USING THE COMMANDS
0430 SET FORTH ABOVE

0440

0450 2. CHECK THE PT04 COMMAND FILE BY RUNNING "PATCH,PT04", BUT
0460 WITHOUT THE /C OPTION. PATCH WILL SIMULATE THE PATCHING
0470 OPERATION, BUT WILL NOT MAKE ANY CHANGES ON THE SYSTEM DEVICE
0480 AT THAT TIME. IF THE DRY RUN INDICATES EVERYTHING IS OK, THEN
0490 PATCH DISPLAYS "CHECKSUM CORRECT -- USE OPTION C TO UPDATE".

0500

0510 3. IF YOU RECEIVED THE CORRECT MESSAGE, YOU MAY THEN INSTALL
0520 THE NEW PATCH WITH THE FOLLOWING COMMAND:

0530

0540 .R PATCH,PT04/C

0550

0560 4. PATCH WILL RESPOND BY DISPLAYING THE PATCH DIALOGUE AND
0570 WILL RETURN TO THE MONITOR.

0580

0590 5. IF YOU RECEIVED AN ERROR MESSAGE (E.G. CHECKSUM ERROR) IN
0600 THE DRY RUN, THEN YOU PROBABLY HAVE NOT INSTALLED PT04. DO
0610 NOT TRY TO INSTALL PT04 IF YOU RECEIVE ANY ERROR MESSAGES.

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0100
0110 "PT05"
0120
0130 SUBJECT: COS-310 V8.00 MENU
0140
0150 TITLE: MENU BUFFER PROBLEM
0160
0170 PROBLEM:
0180
0190 WHEN MORE THAN THREE MONITOR OR EDITOR COMMANDS ARE
0200 SPECIFIED FOR THE FIRST MENU COMMAND, MENU SLEEPS FOR
0210 SEVERAL SECONDS WHEN THAT COMMAND CODE IS ISSUED, THEN
0220 ABORTS AND RETURNS TO THE MONITOR WITHOUT ISSUING AN
0230 ERROR MESSAGE.
0240
0250
0260
0270 MENU
0280 2
0290 61
0300 1372
0310 70
0320 6201
0330 71
0340 3411
0350 72
0360 2323
0370 73
0380 1323
0390 74
0400 3411
0410 75
0420 5324
0430 77
0440 6211
0450 103
0460 6201
0470 104
0480 3411
0490 107
0500 4200
0510 110
0520 1600
0530 124
0540 6211
0550 125
0560 1410
0570 126
0580 6201
0590 127
0600 3411
0610 130
0620 2060
0630 131
0640 5324
0650 132

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0660 5277
0670 172
0680 1577
0690 END
0700 7460
0710 END
0720 /X

0730
0740

0750 SOLUTION:

0760

0770

THE FOREGOING PATCH TO MENU CORRECTS THE PROBLEM.

0780

0790 CAUTION:

0800

0810

BE CERTAIN THAT ALL PRIOR PATCHES HAVE BEEN INPUT

0820

BEFORE ATTEMPTING TO PATCH TO MENU - SEE PRIOR ISSUES

0830

0840 INSTRUCTIONS:

0850

0860

1. CREATE A PATCH COMMAND FILE (PT05) USING THE COMMANDS
SET FORTH ABOVE

0870

0880

0890

2. CHECK THE PT05 COMMAND FILE BY RUNNING "PATCH,PT05", BUT
WITHOUT THE /C OPTION. PATCH WILL SIMULATE THE PATCHING
OPERATION, BUT WILL NOT MAKE ANY CHANGES ON THE SYSTEM DEVICE
AT THAT TIME. IF THE DRY RUN INDICATES EVERYTHING IS OK, THEN
PATCH DISPLAYS "CHECKSUM CORRECT -- USE OPTION C TO UPDATE".

0900

0910

0920

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0940

0950

3. IF YOU RECEIVED THE CORRECT MESSAGE, YOU MAY THEN INSTALL
THE NEW PATCH WITH THE FOLLOWING COMMAND:

0960

0970

0980

.R PATCH,PT05/C

0990

1000

4. PATCH WILL RESPOND BY DISPLAYING THE PATCH DIALOGUE AND
WILL RETURN TO THE MONITOR.

1010

1020

1030

5. IF YOU RECEIVED AN ERROR MESSAGE (E.G. CHECKSUM ERROR) IN
THE DRY RUN, THEN YOU PROBABLY HAVE NOT INSTALLED PT04. DO
NOT TRY TO INSTALL PT05 IF YOU RECEIVE ANY ERROR MESSAGES.

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1050

PT01 - VERSION 8.01

PT01 for VERSION 8.01 is IDENTICAL TO PT05, above.
(Please exchange "PT01" for "PT05" in the above example.)