

UNIVERSITY OF MINNESOTA COMPUTER CENTER
Deadstart Systems Newsletter

23 October 1979

Vol. 5, No. 20

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NOTICE OF CHANGES TO THE SYSTEM

Tom Lanzatella repaired a small error in COMPCPA, a common deck used by the maintenance subsystem. The error caused all maintenance jobs to run at 55K even though a table entry for each maintenance job (in 1SJ) specifies a field length which is less.

Kevin Matthews repaired an error in his implementation of 885 support. The error caused all flawed tracks to be ignored whenever the 885 is initialized. Fortunately, the 885 only has a couple of bad sectors. Kevin also contributed a version of PDUMP modified to handle the 885. Program PDUMP is a small program used by operations to format calls to PFDUMP to perform incremental dumps.

Don Mears contributed the following changes.

- 1) PDP-11 support in 1TD was enhanced to accommodate a PDP-11 with more than 64 ports.
- 2) The card reader driver 1CD, was altered to stop the card reader whenever a card with an illegal punch is encountered (see DSN 5,19 P. 153).

- 3) The field length calculation used by LTA for a run command was changed to factor in file length when the compiler has a MFL= entry point.
- 4) Program ROUTE was changed to disallow forms code specification for users with CSUR validation (see DSN 5,19 P 152).
- 5) EXPORT account file messages were repaired.
- 6) IMPORT account file messages were changed to be more compatible with BATCHIO.
- 7) Don introduced a new PP program, lWF, which is used by EXPORT to transfer ECS data to disk.

Tim Hoffmann altered the USERS/DSD S-display so that job classes can be included. This change is in preparation for his delay queue implementation. Tim also contributed final (?) versions of ARCLIST and RELOAD.

Dean Nelson repaired a bug in CATLIST which caused a blank line at a time sharing terminal rather than a real error message whenever CATLIST aborted because RESEX detected an error condition.

PROPOSED CHANGES TO THE SYSTEM

TERM(UNDERLN) - by R. T. Franta

At the present time, we have users who connect to the Cyber machines using word processing type equipment as the terminal. The CPT is one example of this equipment. In most cases, the user will formulate text information on floppy or cassette at his terminal and then dial up and use TEXT mode to get all of the information into the Cyber. Whenever underline is used in these text files, the users terminal copy is correct while the Cyber copy is incorrect. This is caused by the way TELEX processes the backspace and underline codes.

In normal ASCII mode the backspace is not passed to the file being created but rather wipes out characters in the TELEX pot/buffer. When in BARROW terminal type the backspace gets to the file but the backarrow (also known as underline) is used for pot erase. As a result, there is no way for word processors to use files containing underlining. This is also true for any type of equipment, there is no way to underline text.

After talking with Don Mears and a few others, it appears that the easiest solution to the problem is another terminal type in TELEX. For the sake of this proposal lets call this new type UNDERLN. The translation table would be the same as ASCII translation except for the characters listed below:

Character/key	UNDERLN action
(underline/backarrow)	Pass to file
Control H or backspace	Pass to file
DEL (rubout)	Backspace pot
Control-X (cancel)	Delete line

The use of DEL and control-X in this suggestion follows the ANSI standard

meaning for those characters. This new terminal type would now allow for easy use of underline on our system.

I propose that terminal type UNDERLN be discussed at the next systems meeting and implemented if approved.

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CCL AND KCL PROCEDURES ON THE CALLPRG INDEX - by M. Riviere

I would like to add a new parameter on the CALLPRG index to be used to specify whether a procedure file is in CCL or KCL format. The parameter name could be PT (PT=CC or PT=KC). The default value for PT should be KC for the time being, and be changed in the future when the CCL language becomes the only one available.

There are no CCL procedures in the UCC CALLPRG Index now, but I imagine that eventually they will be. Private CALLPRG indices may also include CCL language procedures soon.

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CPUMTR Rewind - by T. J. Hoffmann

For the past several weeks, I have been gathering some PMS statistics from both the 172 and 74, mainly looking at CIO and a few other monitor functions and PP loads. For the next tape, I would like to install my CPUMTR rewind code and run stats for a few more weeks and try to see if the mod does anything.

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MMF Inquiries - by T. J. Hoffmann

I would like to modify ENQUIRE(JN) to produce the following:

```
MID=72
AEPA110 EXECUTING.
AEPAABC IN INPUT QUEUE.
MID=74
AEPAABD IN INPUT QUEUE.
AEPA110 IN PRINT QUEUE.
```

This would be done by scanning the EFNT's of the other machines. I will write it in a powerful and general manner, but will disable the check of the 720's EFNT since few if any jobs would show up there once we ran MMF on it (if ever). (Another yes vote for MERITSS MMF).

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DSDI and TRT Verification Revisited - by T. J. Hoffmann

Some time ago I proposed a program CHKTRT for verifying TRT's. It was suggested that I change DSDI to do a similar function. Well, the LS (live system) parameter

is now written. It creates a dump file from CMR and allows any CM directive that needs only the information contained in low core, mainly the TRT's and MST's.

SYSTEM MAINTENANCE: People and Procedures

Last Week's Systems Group Meeting - by T. W. Lanzatella

The following proposals were discussed.

- 1) Steve Nachtsheim's proposal dealing with special forms use was approved (see DSN 5,19 P. 152). A spare field in the start of print message is available for forms code and the CSUR access word bits will be used to validate use of special forms.
- 2) Steve's proposal to deal with permanent file charges on the 885 was rejected (see DSN 5,19 P 153). We decided that a charging scheme where all DA files are charged at a 300 PR minimum and x ¢/PRU in excess of 300 should be studied.
- 3) Bill Sackett's proposal to make DSD always force MALET to run at control point 2 was accepted but we didn't see how DSD could perform this function. We decided that the scheduler might be a better place for such a mod (see DSN 5,19 P 153).
- 4) Bill's proposal to change DSD so that N.xxx work ala MACE was deemed potentially useful and accepted (see DSN 5,19 P 153).
5. Brad Blasing's proposal to NODROP CCL scratch files was accepted (see DSN 5,19 P 153).

Jeff Drummond presented a discussion of 607/67X/669 tape compatibility.

The following hardware oriented problems were noted.

- 1) A large number of ON THE FLY errors are occurring on tapes written on 679/669 and subsequently read on 669/679.
- 2) A large number of SINGLE FRAME ERRORS are occurring on tapes written on 607's and then read on 677's.

The following software oriented problems were noted.

- 1) Erase limits are sometimes occurring when opening a new section of a multi-file tape.
- 2) Internal tape requests made by S2K for a 7-track tape with a 9-track VSN are wrecking the label on the 9-track tape which is mounted.

Larry Liddiard asked us to consider how the systems group should be involved with UCC microprocessor support. Larry also reviewed a study performed by JJD on tape charges. Larry announced that we will halve the charge for tape PRU's tape skipped. Bill Sackett asked that we decide when to switch to the 16-word PFC. June was agreed upon.

CALLPRG AND LIBRARY TAPE NEWS - by M. Riviere

On October 10 the Cybers Library Tape was updated with a new version of the MANTRAP file provided by J. Mundstock and a new version of the RETURN function in the CALLPFM section of the FORTRAN library that I provided. Both modifications were bug-fixing modifications.

The next set of CALLPRG index and Library Tape modifications will be taking place on November 12. For that date, I plan to replace SYSLIB with an updated version that will reflect the latest modifications of the common decks of the System Library (WPL485).

I will also be modifying SYSLIB in order to make the main deck of the snapshot routines, RE.CSNP, to contain the entry point SVR=, now contained on RE.CSVR. The SVR= entry conflicts with the name of an entry on a new CDC supplied debugging routine.

Other modifications to be implemented by November 12 should be submitted before noon, November 1.

LIBRARY TAPE PROCEDURE CHANGES - by M. Riviere

On October 18, I changed the procedure that sysedits the Library Tape and sets-up the current CALLPRG and WRITEUP indices on the CDC 720.

The main differences between this new procedure and the old ones are the following:

- 1) The file containing the future tape label is TVSNN instead of NTVSN (this change was made in order to keep file names identical on the 720 as well as on the Cybers).
- 2) The new tape format consists of only one file. There is no more selectively skipping of files for each computer at deadstart time.

Eventually, a similar procedure will also be implemented on the Cybers. Avoiding the skip and selection of files to be sysedited at deadstart saves a considerable amount of time. There is an inconvenience, however, in that the Library Tapes that will have to be created for these procedures are not going to be interchangeable among the three machines.

GOODBYE TO JOHN STRAIT - by Andy Mickel

Well, we lost a good programmer in John Strait, and for the record I'd just like to express some sadness for our loss.

John accomplished a number of unsung tasks while working on various language processors here at UCC. He applied the lessons of orthogonality, clarity, and simplicity that he learned from abstractions represented in modern high-level languages, to the design of a number of utility programs we now use frequently around the computer center. Like ARCHIVE, PROSE, and COPYCH.

John showed some of us through silent example just how effective high-level language systems programming can be highly reliable, timely, self-documenting, and acceptably efficient. Clearly, his work on the Pascal compiler system proved how easily and quickly large changes and improvements could be accomplished with stability.

We're going to miss John. I'd like to end this note by pointing out that John's sense of responsibility carried him through to the end. He very carefully organized his files on tape, bequeathed them to new owners, and cleaned up his office before he left!

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Cyber Deadstart Dump Analysis from Friday, 05 October - Sunday, 20 October
- by K. C. Matthews

Sunday 07, October

16:08 Cyber 172
The system time deadstart disk pack was not replaced with the production time pack. Thus, one device full of permanent files was missing. A level 0 deadstart was required to correct this problem.

Friday, 12 October

16:45 Cyber 74
CMS apparently interlocked something when pack ACCT was mounted on the shared removable drive. A level 3 deadstart was done to free up the shared drive and the interlock.

Monday, 15 October

08:30
A CPU error exit occurred on all running jobs. The system was given to the engineer who found and corrected a solid memory failure.

Tuesday, 16 October

21:46 (DD2002) Cyber 74
The system hung when all access to disk DN17 seemed to fail. It looks as if the drive was reserved (in the hardware sense) but that no PP claimed that reservation. A level 3 deadstart corrects the problem.

Wednesday, 17 October

10:08 (DD2003) Cyber 172
The system hung with a failure bit set in the status control register and some junk in word 0 in absolute low memory. No resolution of this problem yet.

Thursday, 18 October

13:00 (DD2004) Cyber 172
IRO hung processing a Multi-terminal sort for TELEX. The problem was due to a junk FMT entry assigned to the SORT. This may be due to a TELEX problem.

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Cyber 720 Deadstart Dump Analysis (10/8-10/2) - by R. A. Williams

<u>Date</u>	<u>Description</u>	<u>Tape</u>
791009	The channel 6 6676 multiplexer that has been hanging on the channel stopped working completely this morning and was out of the system for 45 minutes. Apparently the customer engineers, while looking for the channel hang problem, had trouble with another card. They are still trying to find the channel hang problem.	N.A.
791009	A PP hung at end of operations but no indication of which one was made in the daily report and no dump was taken.	N.A.
791012	Word 0 was being filled with garbage every so often but the system didn't hang - some enterprising system staff members tried setting a hardware breakpoint to isolate the trouble and the system hung immediately. It is suspected that a design problem in the machine of which the CDC engineers are aware, caused the word 0 problem while the hardware breakpoint feature may not work properly either.	DD-2
791014	The system was down for an hour and a half when the console temperature warning went on and the operators tried to deadstart.	N.A.

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TELEX and TELEX PDP-11 Crash Analysis (10/5 to 10/21) - by D. W. Mears

10/9 9:15 The PDP-11 halted when we were trying to figure out why the new DMAX/16 MUX was not working correctly. We got the PDP-11 running again without reloading.

10/9 14:00 The PDP-11 crashed when a cable was changed on the new DMAX/16 MUX. The cable change caused a ring interrupt to be generated, and because the interrupt to be generated, and because the interrupt vector address in the DM/16 was incorrect, the ring interrupt caused the PDP-11 to jump to some random location in memory.

10/11 09:15 TELEX got stuck in a loop searching for the end of a pot chain which was circularly linked. I still have not found the cause of our pot reservation problems. I have installed code so that this hang will not occur again.