UNIVERSITY OF MINNESOTA COMPUTER CENTER
Deadstart Systems Newsletter

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NOTICE OF CHANGES TO THE SYSTEM

KRONOS Changes

The following changes become effective on Thursday, 22 June.

Kevin Matthews installed the timesharing field length as a new validation limit under KRONOS. This feature is necessary because UCC was to begin using dual access user numbers under NOS on 1 July. The installation date for NOS was changed to 20 August, but the capability must be available for the new fiscal year. Users will note a new field appearing on the LIMITS report, TF.

Don Mears installed a NOS compatible BARROW terminal type and added a new terminal type BARROWD which is a 61-character-set version of BARROW.

Tim Salo added site 28 (West Bank) as a new SUPIO site.

Jeff Drummond altered MAGNET error processing to call DMD rather than DMP. This should produce a more readable dump.

NOS Changes

Kevin Matthews installed changes extending full-track support to MST the mass storage test program. Kevin also moved a direct access file size check on ATTACH from mod PFACT, the permanent file accounting mod, into mod DAFLIM, the mod which enforces the direct access file size limit.

Don Mears repaired a minor error in BARROW processing.

Tim Salo added code to program 1IO which generalizes access to the PDP-11. Tim also installed more code to support the plotter.

Tim Hoffmann changed his recently installed CPMEM error messages to use two lines rather than one and to contain more specific information. Tim also changed certain execute-only file security features in LDR to use secure memory rather than to clear core. Additionally, Tim added a DC option to ALTER (AROUTE and ASEND).

Bill Sackett added some PSR code from summary 462 which corrects recovery of SHARE devices after a level 3 deadstart. The stock NOS SRU accounting mechanism provides for a standard SRU charge whenever a USER, CHARGE or RESEX type operation is performed. Bill changed this standard charge to zero. We may or may not use this capability in the future but users certainly have not been informed.

Jeff Drummond installed the following changes.

1. A mod from PSR summary 471 to program VEJ which adds creation date and MID to the system sector.

2. A mod from PSR summary 471 which causes 1MT to print a dayfile message for VSN assignment of unlabeled subsequent reels.

3. A mod from PSR summary 471 which repairs a cryptic rerun error in QREC.

4. A mod from PSR summary 471 which inserts longer delays into PP programs which loop and issue TDAM monitor functions. This should help to decrease the number of exchange jumps and thus the number of interrupted ECS transfers.

5. MAGNET error processing was altered so that an exchange package will always be produced. Also, the DMP call was changed to a DMD call which should produce a more readable dump.

Hesung Byun converted his MAINTENANCE subsystem to NOS. Maintenance routines called by the subsystem were given new names in order to keep them distinct from CDC maintenance. The old maintenance routines were added to MPLNOS with the new names UMMY1, UMALX, UMRAN, UMCU1, UMCT3 and UMEC3.

Marisa Riviere installed her proposed MI option for CALLPRG index entries. This entry will be used to indicate on which machines a package may (can) be used. Marisa also fixed CALLPRG so that relocatable loads work correctly with the CYBER loader.

PROPOSED CHANGES TO THE SYSTEM

KRONOSCYNCLASTICINFINDIBULUM - by J. J. Drummond

I would like to propose the following changes to Submit under NOS.

1) Install a /PACKNAM directive to specify an alternate pack for the /READ directive. Currently, the format of the /READ directive is: /READ,lfn,pkn

   The new format would be:

```
/PACKNAM,pkn
/READ,lfn
```

This offers several advantages:

a) The packname need only be specified once for several /READ directives.

b) NoSubmit directive will have to handle more than one parameter. This makes it internally cleaner and easier to document.

and several disadvantages:

c) More directives to type in.

d) An inconvenience to users with only 1 /Read directive with a packname parameter.

2) Make transparent mode truly transparent and eliminate the /NOTRANS directive. Currently, when submit encounters a /TRANS directive it examines the next line to see if it contains a submit directive. If it does, it is processed and the next line is examined. This continues until a line is located that does not contain a submit directive or an internal eor or eof is located (an internal eor/eof is a file mark that appears on the source file and not on eof/eor generated by the /EOR or /EOF directives). At this point, submit enters transparent mode and lines are passed unaltered to the submit file. Lines following internal file marks are examined for directives. If there are directives present, they are processed until there are no more directives--in which case submit will reenter transparent mode. This mode continues until (eoi or a /NOTRANS directive is encountered. I propose making transparent mode truly transparent. That is, when a /TRANS directive is encountered, submit continues processing successive directives and then enters transparent mode at which point the entire file is copied unaltered to the submit file.

The advantages include:

a) Greatly simplifying submit by not having to examine each record in transparent mode for directives.

b) Because of a), subsequent portions of the file can be copied with control words/single buffer copy.

The disadvantages include:

c) Less sophisticated editing capabilities.

3) Alter submit so that illegal directives are flagged with an informative message. Currently, if submit encounters a directive that is illegal it simply passes it on to the submit file. Thus if a user mistypes a directive or otherwise makes a mistake there is no indication of an error and the job is submitted--perhaps to run incorrectly. I propose making submit print out any lines that are in error with an error message and then aborting job after the file has been scanned. Additionally, since job or user card error can cause a timesharing user to be logged off, diagnosing submit directive errors may prevent disaster.

The advantages include:

a) Immediate diagnosis of directive errors.

b) Prevention of erroneous jobs being submitted.

The motivation for these changes is a general cleanup of submit and to install local enhancements.

SYSTEM MAINTENANCE: People and Procedures

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

1) The following proposals were discussed and either accepted or rejected.

   a) Tim Hoffmann's proposal to install AROUTE and ASEND was discussed and accepted despite his absence (see DSN 4, 11 p. 86). Several individuals wondered why a DC option (disposition code) had not been included on AROUTE so that plot files could be generated on the C172 and AROUTEd to the C74. Tim's response to this question was to install the DC option. Another issue was whether AROUTE should allow transfers from the C74 to the C172. This is considered a minor option and may be added in the future.

   b) Bill Kaercher's proposal to develop 607 tape transport support under NOS R4 using time on our systems was accepted with some hesitation after Larry Liddiard illustrated an affordable scheme where we could substitute 667 drives for 607 drives when we convert to NOS R4 in June or August of 1979. A majority of systems group members favored getting rid of 607 tape drives. Final approval of Bill's proposal rests with the Executive Committee.

2) Arnie Nelson and Don Mears presented brief descriptions of the NAM class which they recently attended. See either individual for details.

3) Larry Liddiard led a discussion of the current (and anticipated) state of our conversion. The following delivery dates were indicated:

14 June	2nd CPU
16 June	3 or 4 669 tape drives
14-23 June	6642-2 DDP

   The character set conversion scheduled for 20 August may be in trouble due to equipment delivery problems. The 512 in Lauderdale is down 20% of the time and still lacks a 595-6 print train. A 512 for Experimental Engineering cannot be delivered until 13 October. We might be able to move the 580 to Experimental Engineering until October but IMPORT will need a lot of work. Steve Reisman reported that COBOL 4 at PSR 460 is now functioning on the C172. The C172 card reader departs at the end of June. NOS software is as before except that DELAYQ is available and EXPORT almost works.

4) Larry announced that in order to provide additional time with which to finish DELAY jobs, systems time will not start until 4:45 a.m. on the C74 on Tuesday and Thursday mornings.

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Callprg and Library Tape News - by M. Riviere

On June 20, the NOS Library Tape was updated to include the PSR 460 versions of SORT/MERGE, COBOL 4 and its library, CB4LIB, RMERTXT and COBERTXT. These products

were supplied by Steve Reisman. Also on June 20, entries were added on the 172 Callprg Index to stop the retrieval of the PAST and FETCH versions of MNF. This modification was requested by J. Mundstock and the entry contents are only messages informing of the non-availability of these products. That is, an attempt is made to stop offering the non-Record Manager version of MNF on the NOS System.

Also on June 20, an entry for EMULATE was added to the 6400 Callprg Index. This addition was requested by R. Hotchkiss.

There are no modifications scheduled for the Kronos Cyber 74 Callprg Index or Library Tape.

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TIMING TESTS FOR NEW BASIC - by E. J. Mundstock

Timing done on Cyber 172 by averaging ten runs. The compile to core test was done by adding a stop statement as the first statement to minimize execution time.

	BASIC 3			NEW BASIC		RATIO		
	CP	PRU	TO CORE	CP	PRU	OLD/NEW	NEW CORE	
Test 1	1.52	15	.41	.51	17	3.0	1.24	alphabet drill game
Test 2	1.10	7	.37	.47	14	2.3	1.27	alphabet drill game
Test 3	6.92	70	1.87	2.22	86	3.1	1.19	drivers test
Test 4	18.54	128	3.08	3.56	136	5.2	1.16	hockey statistics
Test 5	4.22	41	1.08	1.30	46	3.2	1.20	coordinate geometry game
	a	b	c	d	e	f	g	

a) BASIC 3 compile to binary no execution

b) BASIC 3 binary file size in PRU's

c) BASIC 3 compile to core to execute only a STOP statement

d) NEW BASIC compile to binary no execution

e) NEW BASIC binary file size in PRU's

f) column a/ column d

g) column d/column c

The cost reduction shown by column f is mainly due to the processing of external references, which is very slow in BASIC 3.

Column g shows it does cost something to produce relocatables, however, the additional cost appears reasonable.

The difference between column b and column c is due mainly to the use of TXT tables to handle forward references in the NEW BASIC.

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Cyber 74/172 Deadstart Dump From Friday, 2 June, to Thursday, 15 June - by K. C. Matthews

Monday, 5 June

08:32 Cyber 172

A confusing console note caused the 172 to be deadstarted with the wrong CMRDECK. Thus pack ADPDMSD was not in the system. Redeadstarted at this time.

09:35 (DD-13) Cyber 172

A disk channel hung for undetermined reasons. A level 3 deadstart was required.

09:55 Cyber 172

On the previous level 3 deadstart the half-track controlware was loaded into the disk controller rather than the full-track controlware. This makes the full-track disk run at about 1/24 speed. A redeadstart with corrected CMRDECK entries fixed the problem.

Wednesday, 7 June

19:44 Cyber 172

Both tape units began giving problems. Magnet was dropped and restarted without helping the problem. Even a deadstart did not fix the problem, so the tape controller seemed bad. The problem was gone by morning, however.

Thursday, 8 June

11:10 (DD14) Cyber 74

Numerous errors occurred on the drive for device DN14. Somehow this caused some permanent file interlock to be left on, so that many permanent file requests simply hung in recall status. A level 3 recovery fixed the problem.

12:25 (DD15) Cyber 74

A PDP-11 channel hung. The operators were unable to enter commands to disconnect it. A level 3 deadstart was required.

Friday, 9 June

14:32 (DD-50) Cyber 172

The 172 stepped itself and stopped running because it thought that a power failure was imminent.

Tuesday, 13 June

12:54 (DD13) Cyber 172

PFM hung, apparently because of a track limit.

13:26 (DD14) Cyber 172

Same problem as above.

19:40 Cyber 172

ECS had failed on all three systems. The 172 was used to fix the problem, and a level 0 deadstart was performed at this time.

Thursday, 15 June

10:00 (DD-17) Cyber 74

Tape channel 33 hung (a common occurrence). In clearing the problem, the channel was accidentally released from its software reservation. This caused 1MT to hang.

11:31 (DD-20) Cyber 74

EXPORT hung. The PP for 1HS was full of line images, but no good program was found.

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6400 Deadstart Dump Analysis (5/23 - 6/19) - by R. A. Williams

Date	Description	Tape
780526	A CPU monitor mode error resulted from what is thought to be an exchange package in low core error on the basis of the symptoms but the dump has not been analyzed yet.	DDT-15
780602	The 844 disk controller on channel 7 hung empty but a disconnect cleared up the problem and avoided any down time.	N.A.
780607	The scopes went blank while under 026. A partial analysis yielded no concrete leads and further investigation has not been done yet.	DDT-14