UNIVERSITY OF MINNESOTA COMPUTER CENTER
Deadstart Systems Newsletter

11 April 1978 Vol. 4, No. 7

Send all comments, criticisms and contributions to the editor: T. W. Lanzatella
University Computer Center, 2520 Broadway Drive, Lauderdale, MN 55113
The University of Minnesota is an equal opportunity educator and employer.

TABLE OF CONTENTS

NOTICE OF CHANGES TO THE SYSTEM. 55

PROPOSED CHANGES TO THE SYSTEM 57

MULTIMAINFRAME PDP-11 - D. W. Mears 57
STATE OF THE ASSEMBLER II - J. J. Drummond. 58
MNF/FTN/CRM Interface - C. Schofield. 58
ROUTE Command - T. J. Salo. 59

SYSTEM MAINTENANCE 59

LAST WEEK'S SYSTEMS GROUP MEETING - T. W. Lanzatella. 59
CALLPRG and LIBRARY TAPE NEWS - M. Riviere. 60
DOCUMENTING ACCOUNT FILE MESSAGES - T. J. Salo. 60
CONVERSION AIDS SYSTEM - L. Ozga. 61
COMMON CALLPRG PACKAGES - M. Riviere. 62
CYBER 74 Deadstart DUMP ANALYSIS - K. C. Matthews 63
6400 DEADSTART DUMP ANALYSIS - R. A. Williams 63

NOTICE OF CHANGES TO THE SYSTEM

KRONOS Changes

The following changes become effective on Thursday 13 April.

Don Mears finally installed the long-awaited enhancements necessary to drive a Decwriter as an auxiliary BATCHIO console. These enhancements have actually been in and out of the system for various reasons over the last several weeks. A new common deck COMPSDD was added to MPL in order to install these changes. The new Decwriter is driven by the same PDP-11 that drives the plotter.

Tim Salo repaired an unspecified error in 1SA and installed two new site codes into SUPIO.

Kevin Matthews supplied the following changes.

1) System sector processing in PP resident was corrected to request a small number of tracks when writing a system sector. Previously, a large number of tracks were being requested only to have most of them dropped later.

2) The PP-resident idle loop was altered to keep track of the number of times the loop had been executed.

3) In preparation for the C172, a new partitioning of ECS was set up. This meant software changes to COMSXMT and to SUPIO. The following table describes the current and new ECS partitioning.

CURRENT		NEW	
SUPIO	0K-70K	C172	0K-33K
C74 User ECS	70K-370K	TRANSIT	33K-40K
C74 File ECS	370K-620K	SUPIO	40K-110K
Unused	620K-640K	C74 User ECS	110K-410K
6400	640K-	C74 File ECS	410-640K
		6400	640K-

Bill Sackett installed the following changes.

1) Program 1CK was altered so that DM type equipments are among those for which a spare copy of label is kept on the inner cylinders.

2) The mass storage tester MST was altered to accommodate DM type devices.

3) A new CPM function was added which returns the U of M SRU accumulator. The new function is function 70. Program COST was altered to make use of the new function.

Marisa Riviere installed several changes to CALLPRG and RFM.

1) Quantities specified via the SR parameter are now taken as decimal quantities.

2) All assembled in references to SP were removed.

3) Considerable documentation was added to the program source.

4) Program RFM was adjusted for the removal of pack SP.

5) The RFCAT report will now be a sorted report.

Jeff Drummond installed the following changes.

1) Site 8E was added to the list of legal XMIT sites.

2) In preparation for the NOS implementation of TRANSIT, the ability for one mainframe to determine the status of another mainframe was removed as well as the INITECS COMRDECK directive.

3) Two new common decks were added to MPL, COMSMMF - the NOS multimainframe equivalences and COMPCMO - used to compute machine ordinals.

NOS Changes.

Tom Lanzatella installed the following changes.

a) EXPRES - the mod to RESEX and MAGNET which installs our local express tape library.

b) MTACT - a mod which installs our local account file messages for tape use.

c) TTYACC - the mod which required CPAK and CSOJ set in the access word in order to access tapes or packs from timesharing origin.

Tim Hoffmann installed the following changes.

a) Tim installed his proposed change to COMCZAP which removes a FILEB macro call and substitutes CON statements.

b) DISSJ - a mod which causes the SSJ block to be swapped back when SSJ privileges are relinquished.

c) DISSJ1 - a mod to make use of the above feature in MODVAL.

d) SYTIME - the mod which installs the KCL key words SYSTIME, ENGR, DEBUG and LOWRATE.

c) READCP - the CPM function which reads any word in the control point area.

Kevin Matthews installed his proposed change to the RSB function (see DSN 4, 6 p.48).

Don Mears installed ROTARY, the modset which performs the rotary check.

Jeff Drummond installed the old PFMOD, the mod which added most local enhancements to PFILES, only the mod was broken into several smaller modsets. The important modsets from this group are: PL, SS, WB, PNO, CLEAR, ACQUIRE, and RETAIN. The function of each of these modsets is closely related to its name. Jeff also reinstalled the ZERL mod, the mod which changes use of word 0 to word ZERL. Additionally, Jeff altered CPUMTR and MTR so that the PP HUNG message will be intensified under NOS.

Tim Salo installed mod BINW, the mod which installs most bin number processing.

PROPOSED CHANGES TO THE SYSTEM

Multimainframe PDP-11 - by D. W. Mears

Because of the late arrival date for the 2551, we will have to use a PDP-11 for the TELEX front end (at least for a while). The two solutions which have been suggested are: moving the existing TELEX PDP-11 to the Cyber 172 or putting together a spare PDP-11, a spare link and one of the MUX's from the current TELEX PDP-11, and create a new TELEX PDP-11 front end for the Cyber 172.

I propose a third solution. I want to connect two links to the current TELEX PDP-11 and allow it to talk to both Cyber mainframes. The advantage to this approach is that it allows us to have phone rotaries shared between the two systems. That is, users will be able to dial one phone number and get into either system (if they are validated for that rotary). By having fewer and larger rotaries we should be able to make better use of phone resources through economies of scale. This is particularly important for the small 1200 baud rotaries which currently consist of 3 ports on the VADIC rotary and 4 on the Bell rotary.

To implement a multimainframe front end, the user will have to be able to send commands to the front end. This will work similar to CCP on the 2550. Input lines which begin with a % sign will be treated as front end commands and will not be passed on to TELEX. Initially only the following commands will be available:

%C74 Causes the user to be disconnected from the current system (if any) and connected to the Cyber 74. If the Cyber 74 is not up, a warning message will be issued.

%C172 Is the same as %C74 except that the user is connected to the Cyber 172.

After a user has dialed in and the front end has determined the user's baud rate, the front end will request the machine desired with the message:

"% SELECT MACHINE (%C74 or %C172):"

The changes required to support a multimainframe front end are fairly simple, because the program was written with this in mind. No changes will have to be made in any Cyber programs for this feature.

//////////

The State of the Assembler - Part II - by J. J. Drummond

Several changes have occurred with system texts under NOS. The following table helps illustrate these changes:

DECKS	KRONOS TEXT	NOS TEXT
CPCOM,PPCOM	SYSTEXT	NOSTEXT
CPCOM	-	SYSTEXT
COMCMAC	MACTEXT	-
COMCMAC,COMCCMD	-	PSSTEXT

PSSTEXT (Product set support) essentially replaces our own MACTEXT. Since SYSTEXT is still the default text for COMPASS, I would like to propose changing the COMPASS U parameter to call NOSTEXT instead of MACTEXT and to eliminate MACTEXT under NOS.

//////////

MNF/FTN/CRM Interface - by C. Schofield

Since the MNF execution library is not a complete Fortran library, it has always been necessary for some MNF jobs to use routines from an existing CDC Fortran library. With the modern versions of MNF, this library has been FORTRAN - the confusing name chosen by CDC for the FTN 4 library, or Fortran Common Library (FCL). For the MNF/FCL interface to be successful, it is required that either CDC make no radical design changes to the FCL, or that MNF adapt to such changes. For the past two years, we have been fortunate in that the FCL design has been unchanged. However, there is a design change at FCL PSR level 460 which causes (probably) the I/O interface between MNF and FCL to fail. This means that a routine containing I/O statements compiled using FTN and using the FCL 460 library would fail if called by an MNF job. Worse is to come. There is a complete redesign of the CP-I/O at level 472. The RA+2 files list is removed, the FIT and FET are combined, and I/O buffers are "virtual", owing to the introduction of CRM Version 2, and Common Memory Manager.

Users (unlike systems programmers) prefer stable products. MNF is now very reliable, and it is debatable how widely the MNF/FCL interface is used. Therefore, I propose not to maintain the MNF/FCL interface beyond FCL PSR level 439. This may involve that an FTN/FCL level 439 product be available for maintainers of the Minnesota Fortran library. It would mean that users would not be able to create FTN-User-Libraries and call them from MNF jobs if they compiled those libraries on a version of FTN later than PSR level 439.

It is questionable how much trouble this will give to the user. We do not know how widely the feature is used, and we will not know until it is removed. My own view is that annoyance will be slight.

In addition, it is most likely that FTN jobs at level 472 will not be able to interface to MSUIO. Despite speed and core improvements in CRM2, it is still not a serious competitor to MSUIO (using CDC's figures). In addition, no errors have been reported in MSUIO (except one which was my fault, and due to Mantrap).

Therefore, I feel that we should retain MSUIO, and allow MNF and FTN to diverge--to become the independent products which they always were. This will involve taking the current FCL/439 library and adding it to the MNFCLIB library--which we would then freeze, except for local error correction.

If it is found that CRM2/CMM offers substantial user facilities or better efficiency than MSUIO, we could change our minds. However, I don't regard that as likely. Every new can of worms has been less efficient than the previous one. Notably, without CRM (which was done for COBOL--not Fortran), we would not have seen the Cyber loader or CMM. Your constructive comments are welcome.

//////////

The ROUTE Control Statement - by T. J. Salo

The Route control statement DC and EC parameters will control the routing of print files to the proper line printer/print train combination. The DC (disposition code) parameter controls the selection of the line printer. The EC (external characteristics) parameter specifies the desired print train. The DC and EC parameters are independent and may both be specified. If the DC=PR (print on any line printer) parameter is specified and no EC parameter is specified, the file will print on any printer irrespective of the print train in use. Files with disposition code/external characteristics combinations which do not match any equipment (e.g., a full ASCII print train and a 501 printer) will never print.

SYSTEM MAINTENANCE: People and Procedures

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

The following proposals were rejected or accepted.

a) Tim Salo's proposed changes to the ROUTE command were accepted (see DSN 4, 6 p.47). LAL expressed a desire that the utility plainly inform the user when nothing happens.

b) Kevin Matthews' suggested changes to the RSB function were approved (see DSN 4, 6 p. 48).

c) Marisa Riviere's proposed enhancements to WRITEUP were approved (see DSN 4, 6 p. 49).

d) Tim Hoffmann's proposal to move the routine DTIME to the deadstart tape was approved (see DSN 4, 6 p. 51).

//////////

Callprg and Library Tape News - by M. Riviere

On April 4, S. Yen made SPSS 7.0 current, SPSS 6.5 past and removed the up-to-then past version.

Also on April 4, L. Ozga installed a set of MASTER to NOS conversion packages as Fetch type packages. These packages are:

CBLFCPI (COBOL file converted, Part I)

CBLFCP2 (COBOL file converted, Part II)

COUP (COSY to UPDATE conversion)

FTNFCP1 (FORTRAN file converter, Part I)

FTNFCP2 (FORTRAN file converter, Part II)

LCS (FORTRAN/COBOL language converter)

Larry has a separate article in this DSN describing these products.

On April 11, T. Hoffman replaced STRATEN on Callprg with its future version. Also on April 11, I replaced the future version of FORTRAN on Callprg. This new version of FORTRAN contains again the original CDC code for the DUMP routine. A record with a similar name introduced long ago by M. Frisch in the arithmetic section of FORTRAN forced the removal of DUMP and PDUMP (an entry point in CDC Dump). The version of DUMP in the arithmetic section of FORTRAN does not have much usage and, according to M. Frisch, its disappearance will not cause major problems. The problem with DUMP was brought to our attention by a user.

Also on April 11, Bart Johnson added the HTEKLIB library (Tektronix hard copy library). HTEKLIB was installed as a Cyber 74 as well as a 6400 Callprg file.

The next Callprg and Library Tape modifications will be taking place on May 2. Requests for modifications should be submitted before noon on April 20.

//////////

Documenting Account File Messages - by T. J. Salo

A new common deck, COMSAFD (Account File Definitions), will document all account file messages implemented by the University of Minnesota under the Network Operating System. This common deck, in addition to documenting new account file messages, will provide guidelines for implementing new accounting messages and will allow programs to access directly the account file message definitions.

It is recommended that U of M account file messages follow NOS conventions. In particular, account file messages may be uniquely identified by a four-character mnemonic. This four-character mnemonic will be followed by a comma and a blank. The first character of the mnemonic, defined by the micro ≠UAFMC≠ (University Account File Message Character), will identify a message as a U of M message. The second character will classify the message into one of several broad categories. The second character conventions used by CDC are specified below. All other alphabetic characters are available for use as second characters. The last two characters uniquely identify the message within the category of U of M accounting messages. Each four-character mnemonic will be defined as a micro in COMSAFD, allowing unequivocal communication between the Systems Group, Accounting, and others analyzing the account dayfile.

Second Character Conventions used by CDC

A - Abort operation
B - Beginning of job or session
C - Change in accounting activity
D - Disk activity
E - End of job or session
I - Informative message
M - Magnetic tape activity
P - Permanent file activity
Q - Queue operation
R - Recovery operation
S - Suspension of session

Sample COMSAFD Definition

```
***     Terminal Login.
*
*       MBID, ID, P.
*
*             ID = Terminal Identifier.
*             P  = Port Identifier.

AMTLI   MICRO  1,, ≠UAFMC≠BID

//////////
```

Conversion Aids System - by L. Ozga

The Control Data 3000L to Cyber Conversion Aids System Version I has been installed as a set of FETCH type CALLPRG programs on the Cyber 74.

There are four parts to the system:

1. FORTRAN/COBOL Language Conversion Processor. This will do rudimentary conversion of MASTER FORTRAN and COBOL source language to KRONOS source. FN=LCS.

2. FORTRAN File Converter. This will convert unblocked MASTER files created by unformatted writes and BUFFER OUT's to the KRONOS counterparts FN=FTNFCP1 and FTNFCP2.

3. COBOL File Converter. This will convert some MASTER COBOL file types to their KRONOS counterparts FN=CBLFCP1 and CBLFCP2.

4. COSY to UPDATE. This will convert MASTER COSY program libraries to UPDATE program libraries. FN=COUP

Use of the system is described in the following CDC manuals:

1. CAS Language Conversion Users Guide 19980900
2. CAS FORTRAN Conversion 19980600
3. CAS COBOL Conversion 19980700

//////////

Callprg Machine-Associated Packages in the 74/172 System - by M. Riviere

The Cyber 74/172 will be sharing the same Callprg index in the future common NOS System.

Most of the Callprg packages will be common to both computers. A few packages, however, may have their usage restricted to only one machine due to copyright restrictions, installation needs, or some other requirement. Some special installation arrangements will have to be done for these particular products.

The common packages which will reside as disk pack Callprg permanent files in the NOS System will be located in the SPL pack. This pack will be used first only by the Cyber 172 but will later become a common disk for the 172/74 System.

The Callprg packages on SPL will be, as are all disk resident Callprg packages, public permanent files in read or execute only mode, and therefore accessible to anyone.

The Callprg tape library will also be common for the two machines. The tape packages, when in active use, will reside as public files in the Callprg auxiliary working account number also on the common SPL pack. These files will be public but have passwords just as the ones now used for the tape resident packages on the Cyber 74. The usage of passwords makes the tape resident packages, when residing temporarily as disk pack files to be of restricted access.

The disk pack files that are going to be used only on one machine will not need to reside on the common disk. Better yet, they should not reside there if they are of machine's restricted usage since the files of the common disk will be available to both machines. Besides, if a package will be used in only one machine it should not be taking space on the common disk.

An extension of the Callprg index entries may be necessary to accommodate packages that will either have a different version installed on each computer or will be available on only one computer.

The disk or tape resident packages which will be common to both machines will only need to use a single index entry as they currently do on the Cyber 74.

The machine-associated packages may need to include in their index entries a means of referencing the corresponding machine. A machine identification parameter (ID) could be used in these cases, to identify the Callprg index entries.

The entries for packages whose ID parameter does not agree with the machine where they are requested can be ignored by Callprg when scanning the index. This way of extending the index entries will mean that, when different versions of products with the same name are used in each computer, one index entry, with at least a different ID parameter, will be needed for each machine. This also will mean that, when a given package is available only on one machine, its index entry will have to include the ID parameter.

Following are some examples of how the Callprg index entries could be like if using the ID parameter:

```
PRODUCT1,UN=...,PN=...,SPL,DA=PRODUCT1.

PRODUCT2,UN=...,ID=AB,MT=LB...

PRODUCT2,UN=...,ID=AA,PN=STF,DA=...
```

PRODUCT1 is a common product used in both computers.

There is one version of PRODUCT2 to be used only in machine AB that resides in a Callprg library tape and another version of PRODUCT2 to be used only on machine AA, which resides on the STF pack of that machine.

I would like to hear from anyone that plans to maintain machine-associated packages in the NOS common System in order to take into consideration the number of packages that will need to be handled as such and then see if the implementation of the ID parameter feature can really be useful.

Placing machine-associated packages on PN-0 can, somehow, fill the same machine ID parameter purposes for a few products. But a proliferation of packages installed like this can create possible problems in the future, such as confusion with respect to different version's updating, inconsistence in the modification of index entries and the availability of the products during System's time.

//////////

Cyber 74 Deadstart Dump Analysis from Monday, 20 March, through Thursday, 6 April - by K. C. Matthews

Tuesday, 21 March

10:36 ECS was solidly bad. The problem was fixed by the engineers.

Saturday, 25 March

11:34 (DD-2) The scopes went blank. Analysis revealed MTR (PP0) all over low core CM; Another PPU containing 1RO was wrecked inside. No resolution.

Monday, 27 March

10:20 (DD-4) CIO hung processing the VALIDUS file from the 6400. The scopes went blank while DIS was up examining the problem. This was because DIS was pausing waiting for another HUNG PP.

10:48 System hung again after a second attempt by KCM to fix up VALIDUS.

11:12 Another hung PP. Many files on DN17 were bad, so the device was reloaded. (DN17 holds the VALIDUS file.) I don't know whether DN17 was wrecked by all the messing around for VALIDUS, or whether the VALIDUS problem was an early symptom of the DN17 wipeout.

Wednesday, 29 March

15:07 Machine was down for an hour due to water problems.

19:19 (DD-5) The plotter hung. Channel 32 (Unit record I/O) appeared hung at the same time.

Thursday, 6 April

16:16 The power failed for a few seconds, bringing the computers down for about a half-hour.

//////////

6400 Deadstart Dump Analysis (3/17 - 4/9) - by R. W. Williams

Date	Description	Tape
780321	ECS went down and the system refused to stop using it. The problem was found to be some system mods and they were removed.	Fixed
780323	The 844 disk units were being reloaded to allow use of a new DM equipment which has track size equal to double density equipment but uses single density type. This took longer than expected and the system came up late.	N.A.
780327	The system hung for unknown reasons. Apparently no jobs were being scheduled.	See me
780329	The system was down for a total of about four hours as a result of a switch from city water to well water which led to the plugging of a strainer in the water feed system to the mainframe. The strainer was located in a different location from others.	N.A.
780401	The scopes went blank and again most PP's were hung on CRD instructions. A hardware problem is suspected.	DDT-13
780406	A power fluctuation caused the system to go down.	N.A.