UNIVERSITY OF MINNESOTA COMPUTER CENTER
Deadstart Systems Newsletter

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NOTICE OF CHANGES TO THE SYSTEM

Bill Elliott contributed the following collection of changes.

1) We now have a new system procedure file called TESTMT. The procedure
    will be used by Customer Engineers to test tape drives. The format
    of the procedure call is: X.CALL(TESTMT(EQ=nn,CH=mm) where nn is
    equipment number and mm is channel number. The procedure can only be
    called from the console.

2) Bill fixed a problem in PFILES RETAIN processing. Under certain circumstances,
    RETAIN would purge the wrong file before defining the new file. This
    problem was actually never on the system since it was caught before the
    last tape was installed.

3) Bill repaired a bug in 1SP which caused queue priority for system
    origin jobs to be set to zero whenever the MS or MT PRU counter
    overflowed.

4) For several months, operators have noted with distress that tapes
    occasionally disappear from the preview display. The explanation for
    the disappearance is that whenever MAGNET spots a potential overcommitment
    situation, the tapes involved are removed from the display to avoid the
    fatal embrace. Operations would prefer to see these tapes. Bill fixed

the display so that the tapes continue to be displayed but the equipment entry is displayed as * (asterisk).

5) Bill corrected a confusing error message which resulted whenever a user specified an ID when requesting a labeled tape. Previously, the user received the message, ID NOT SPECIFIED. The new message is ARGUMENT ERROR.

6) Now that tape access is handled via the EXPLIB and TAPES utilities the integrity of data on the EXPRESS file is of the utmost importance. Bill repaired a problem in RESEX which could cause destruction of past tape access data on the EXPRESS file if an operator or system programmer attempted to defeat the tape access mechanism using a system origin job.

7) Bill added a new overlay to UFM called 2UB and a new CPU program UNBUSY. See DSN 2, 12 p3 for calling sequence and command format.

8) Program 1DU has a new operator message (message 22) which deals with a job purged because of a protected label on a tape when the tape is requested as unlabeled with PO=W.

9) The TAPES utility now supports the OWNER, RESERVE and RELEASE options. The OWNER option allows a user to designate an alternate user as tape owner. The RESERVE and RELEASE options form the tape reservation pool proposed in DSN 2, 18 p3.

The following modifications were contributed by Kevin Matthews.

1) Internal documentation of the CPUMTR binary search algorithm was updated.

2) The changes necessary to implement the recent change in disk configuration (see DSN 2, 18 p11) were installed into PFM.

3) Kevin installed a CDC fix to PFLOAD which repairs an erroneous termination error.

4) The proposed change to the formula used to map time limit index into time limit (see DSN 2, 18 p4) was installed.

5) The CDC routine DSDI used to analyze deadstart dumps was added to the stock CDC OPL. This routine normally resides on one of the maintenance tapes but because it has to be modified whenever we change low core or the control point area, we decided to subject it to mod scheme conventions.

6) Kevin's performance measurement statistics mod was resubmitted to add some new features and to delete some unused statistics. More changes will be coming on the next tape. The most noticeable feature is the addition of 24 more PMS options. Now the ENABLE,PMSXX. and DISABLE,PMSXX. commands are legal for XX having values $00B \leq XX \leq 37B$. The first 8PMS bits are where they used to be in byte three of word SSTL in low core. Byte three of SSTL is copied into byte three of LDRR whenever a CPU program begins execution. They can be easily tested by a CPU program, so we have reserved options 0 through 7 for those programs. Option 0 now tells the rolling statistics gathering program whether to run or not. Option 1 tells the loader to update the loader statistics file. The remaining option bits are located in the top two bytes of PMSP in low core. They will be used for options checked by PPU programs and by CPUMTR.

Currently, three options are in use. Option 10 tells various programs in the system to use the PMSM function to compute average time for certain job steps. Before, this was not an option, it happened all the time. Option 11 tells PPU program 1RI to issue an account file message each time it is called giving the length and equipment number of the rollin file. Option 12 tells the PPU monitor to keep certain statisitcs in central memory. Otherwise MTR will not access core for statistics. Finally, some temporary code was added at the request of N. L. Reddy. Program CIO keeps track of the number of mass storage sectors it transfers. The counts are kept so that one knows how many sectors of each file type (permanent, local, input, etc.) are transferred by CIO.

N. L. Reddy resubmitted mods TXD001 and CHAR63. Reddy simply moved some code out of TXD001 into CHAR63.

Jeff Drummond modified program 1AJ and EXU to set the PP clear core bit on all execute only file loads. Jeff also fixed 1AJ to suppress exchange package dumps for time limit or operator drop of system origin jobs. Additionally, Jeff fixed several bugs related with XMIT/SEND.

1) DSD ENABLE/DISABLE commands were added for XMIT and ECSXFER.

2) ECSXFER now returns files to the queue correctly.

E. J. Mundstock repaired a bug in WRITEUP which was writing garbage into the loader control word causing subsequent MAP commands to malfunction. (Credit Mike Huck with discovering that correlation.) Jim also repaired a bug in CALLPRG which was leaving user numbers and passwords on the CALLPRG interlock file. In addition, Jim added VENUS, CALLPRG, PROFILA, TALKFIL and NOTEFIL to the list of protected files.

Brian Hanson supplied a new version of the CYBER loader. The new version checks PMS bit 1 before gathering any load statistics. In addition, Brian added the S option to the MAP command. This option gives only FL required to load and FL required to run. This was an old MERITSS feature. Brian also fixed a bug in LINK 77 table processing.

Bob Zalusky contributed the following assortment of modifications.

1) Bob repaired the E,P display to display all DSD ENABLE/DISABLE functions. Previously, only the most important functions were displayed.

2) A long standing problem with DSD has been the S display. The S display is used to display the service limits for each origin type. Because we have added so many origin types, the S display no longer fits onto a single screen and rewrites itself thus garbling part of the display. Bob fixed DSD so that the S display appears on two screens.

3) Four new validation bits were added to the access word (see DSN 2, 18, p8).

    a) CICM - allows override of FL service limits.
    b) CDSD - validates use of DSD.
    c) CPAK - validates use of removable packs and tapes from time sharing origin.
    d) CSTF - indicates user is staff - initially used to validate RSB permission.

These four bits were added because the System Strategy Committee felt that too many permissions were validated with CSOJ. All of the above permissions were, in fact, tied to CSOJ. When the VALIDUZ file is rewritten to install these four bits, CSOJ will be removed from all users. All staff members will be given CPAK. All staff members who previously had CSTP (TELEX Privileged commands) will receive CDSD. In addition, all users will receive CPPF (protected permanent files).

4) Bob changed programs USERS, LISTVAL and LIMITS to reflect the new permission bits.

Tim Salo submitted the following modifications.

1) Tim repaired a bug in the LOWRATE processing code of 1DS which was not setting the LOWRAT bit in the job communication area.

2) The source for QPLOT was added to the system. Program QPLOT is used to dump the PLOT queue.

3) Tim wrote a new common deck, COMSSIO, which defines all equivalences used by SUPIO and 1SU.

4) Program COST now checks for the LOWRAT bit in the job communication area and changes the job cost calculation appropriately.

5) Port 29 (Northrop King) was deleted from SUPIO. Port 26 (Duluth off-hours site) was added.

PROPOSED CHANGES TO THE SYSTEM

Bill Elliott proposes to add a new argument to TDUMP called DW which would force full width listing to TT type equipment - like the DECWRITER.

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LDR and Subcontrol Point Loads - by Brian Hanson

One of the major problems with subcontrol points is getting a program loaded into the subcontrol point correctly so that it will execute. I propose that an option be added to LDR so that it will load correctly to a subcontrol point. There is already present the FWA parameter which will cause an overlay to be loaded starting at that address. Thus, the only need would be to have LDR add the relative address to this and load at the computed address. I propose that one bit in the second word of the LDR call block be used to notify LDR of the subcontrol point load. The format of the second word of the LDR call block is:

    12/level,2/L,3/0,1/U,1/V,4/0,1/E,18/LWA,18/FWA
The proposed format is:
    12/level,2/L,3/0,1/U,1/V,3/0,1/SCL,1/E,18/LWA,18/FWA

Where: U=system call
        V=always set
        L=call block length-2
        E=set if execution desired
      SCL=set if subcontrol point load
      FWA=load address
      LWA=unused

Note that when SCL is set, E should be clear to prevent execution. Control is returned to the caller not to the overlay.

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SUBMIT Proposal - by W. J. Elliott

Permit a system origin job to SUBMIT another system origin job. Currently, SUBMIT enters jobs only to the UCC added submit queue (former -N- option).

It is proposed to extend the current SUBMIT control card to process an S parameter:

SUBMIT,file,S

This form would be legal only from a system origin job. No change in the current operation of this control card from other job origins (e.g., BATCH, TELEX) would occur.

This feature will be most useful at deadstart initialization of the system by ISF which submits several job: BATCHM, CPUSTATS and TAPESTATS. It would also be useful for system initiated procedures such as CEINFO, TAPEQA, etc. Running these jobs as system origin would permit the use of the SUN control card rather than ACCOUNT/USER which would make these procedures easier to maintain.

The code required to implement this feature is minimal as most of it already exists to support CALLPRG (QFM function 40).

/////////

TAPES - CLEAN and TEST Functions - by W. J. Elliott

Implement two more sub-functions to the TAPES control card.
TAPES(CLEAN,VSN=SN1/SN2/SN3)
TAPES(TEST,VSN=SN1/SN2/SN3)
Use of these functions rather than the request slip would allow automatic accounting of tape cleaning and testing. It would also provide a double check on tape testing requests for reels stored in the library. Current procedures would have to remain in effect for transient and bulk tape handling. To encourage the use of these control cards. A reduced rate could be charged which should be justified by the decrease in manual accounting procedures. Contingent upon implementing either control card is the decision to begin charging for cleaning/testing on general reel size (large, small) rather than exact footage.

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Four Small Changes - by Tim Salo

1) The common deck COMCFQO (Format Queue File Output) should be changed to display the U of M origin type/terminal ID, rather than the stock CDC origin type. This is primarily to aid operations.

2) QFM function 17 (Release File to Input Queue) should be modified to ignore the ID and origin fields in FET+6. This causes problems for operations as jobs seem to appear from nowhere when submitted by LDI or the SUBMIT macro.

3) Programs 1SU and 2SU should be modified to accumulate the total number of requests for each function and issue dayfile messages with the totals for each function similar to TELEX.

4) The 1SU message

    JOBNAMEID.bCARDS READ.bbbbbbbbbbbbxxxxxxxxxID

    should be changed to

    JOBNAMEID.UCCR,b00,bxxxxxx.xxxbKCDS.ID

    to conform to KRONOS standards for account file messages.

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A "Minor" Proposal for UFM – by K. C. Matthews

As part of the PMS mods, we want to be able to change certain entries
in the PMS table. At first, the entry changed will tell MTR what channels to
watch closely; but other uses will be coming. This proposal is for a UFM
function which will write a single word into the PMS table providing:

1) The ordinal of the word into the table is valid, and

2) The job is system origin (or has the CSOJ bit with the system in
    DEBUG mode).

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A "Fast Attach File" Proposal – by K. C. Matthews and B. Zalusky

We have been bothered again recently by people using CALLPRG to get at
certain Fast Attach Permanent files. The problem was eliminated by adding
the file names to CALLPRG's list of reserved file names, but a more general
solution is desirable.

When a SSJ= type job attaches any permanent file, PFM checks to see if there
is a fast attach file of the same name. If there is, the Fast Attach
file is obtained without performing the normal PFM catalog search. There
is a special bit (corresponding to the FA parameter on the ATTACH macro) which
says that the file sought must definitely be fast attach.

This means that if a SSJ= program, like CALLPRG, tries to attach a file like
VALIDUZ, it will always get the fast attach version. There is no way it
can specify that a regular permanent file is desired, not a fast attach one.
Note that the real fast attach version of VALIDUZ will be obtained even
though CALLPRG may be looking for a file under a different account number;
when a SSJ= job tries to attach any permanent file under any account number,
the fast attach file will be used instead if one exists.

This seems like a poor design on the part of CDC. There seem to be two
logical ways to fix it.

1) Add an NFA (no fast attach) bit to the PFM call. Then CALLPRG and any
    other SSJ= programs that UCC writes could specify the NFA parameter. We
    don't like this solution, however, because it complicates the PFM call
    and the ATTACH macro. The only real virtue of this proposal is that it
    is completely upward compatible.

2) Attach a fast attach file only if the FA bit is specified. This is
    logically more satisfying. One or two cards (the ATTACH statements)
    would have to be changed in MODVAL, PROFILE, and CHARGE to add the FA
    parameter. The other SSJ= programs already specify FA if they want a
    fast attach file. This proposal will also eliminate a needless search

of the FNT for ATTACH requests by SSJ= jobs in general. Since no user job can attach fast attach files, no user will be affected by the change. We recommend that this option be accepted.

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CALLPRG Proposal - by D. R. Lienke

Applications Poser: Recall that every person in the UCC has consulting responsibilities. 'Spose then someone asks you how to get some IMSL (or EISPACK or whatever) routines loaded with his program. Few of us have photographic memories, but you might guess that:

<div align="center">

FETCH,IMSL.
</div>

(and)   LIBRARY,IMSL.

(or)   LIDSET(LIB=IMSL)

will probably work.

Unfortunately, not so; at least not on the Cyber.[1] You have to know a) what machine is being used and b) which compiler is being used. On the Cyber, one must use:

<div align="center">

FETCH,IMSL.   (for FTN V4)
</div>

and   PAST,IMSL.   (for MNF)

On the 6400, one uses:

<div align="center">

FETCH,IMSL.   (for MNF)
</div>

Confusing.

Let us not concern ourselves with whatever decisions led to this situation. Let us examine the facts and the current circumstances to see whether we might be able to resolve the confusion.

Perhaps the most important contribution to confusion is the existence of so many distinct FORTRAN compilers. The reason that they may be considered distinct is that they:

1. Generate different calling sequences (e.g., RUN as opposed to FTN)

2. Cause different I/O routines to be used (e.g., FTN Version 3 as opposed to FTN Version 4)

These aspects may be summarized as follows:

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1. Cyber August usage of MNF was 36000, and FTN was 8000, so the chances are better than 3 in 4 that a person was using MNF. The uses of the libraries themselves is obviously a factor, but neglected here since we are only illustrating a problem.

Version	Execution Sequence	Calling Sequence	I/O Routines	Suggested String Name	(To be discussed later)
–	RUN.	B registers	RUN10	RUN	
3	PAST,FTN. FTN.	A1/X1 pointer	MNF/FTN3	FTN3	
4	FTN.	A1/X1 pointer	CRM	FTN4	
–	MNF(C=RUN)	B registers	MNF/FTN3	MNFRUN	
–	MNF.	A1/X1 pointer	MNF/FTN3	MNF	
–	FETCH,MNF. MNF.	A1/X1 pointer	CRM	MNFRM	

(TSF and F76 are not listed since I know nothing about them.)

The horror story clearly emerges. More terror looms on the horizon with the proposed F76 compiler (no reflection intended upon authors).

This problem may not be along only FORTRAN lines. Any processor that is capable of having a library (e.g., PASCAL, COBOL) might be subject to the same confusion.

Let us, then, try and state the problems(s).

How may we reduce confusion among applications libraries that must be used with specific compilers? How may we reduce confusion for users of applications libraries that run on both machines?

1. Obviously one solution is to rid ourselves of some compilers. This is being worked on; RUN is supposed to disappear, but slimming down our port-folio of compilers to only one seems unlikely. It is beyond the scope of this proposal to examine the whys and wherefores of the justification for continued existence of specific compilers.

2. We could make the name of each library unique, depending what it is intended to be used with. For example, with IMSL:

    FETCH,IMSL5F.   IMSL Edition 5 for FTN4 and MNFRM.

    FETCH,IMSL5M.   IMSL Edition 5 for FTN3 and MNF.

    (and similarly for real past and future versions of IMSL)

    However, this becomes unwieldy for changing between compilers, since LIBRARY and LDSET cards would also have to be changed (or the user could put in a RENAME card).

3. We might allow an equivalence on the FETCH card:

    FETCH,IMSL=IMSL5F.

    FETCH,IMSL=IMSL5M.

    This moves the rename function to the FETCH processor. (Such an idea has merit in another sense: e.g., FETCH,OPL=CPOPL.)

    Personally, I dislike the "unique name" idea, since each library main-tenance programmer would have to keep coming up with new names and the users would have to remember the name and so on – a first class express

ticket to hassle city.

4. After some discussion with Frisch, Williams, Nachtsheim, and Skow, MJF and I came up with the following suggestion.

   Define a mnemonic string for every compiler, such as under the last column in the above table. Expand the capability of FETCH to allow the use of this string as a descriptor, making the FETCH card look similar to PF commands.

   $$\text{FETCH},p_1,p_2,\ldots,p_n/\text{compilerstring.}$$

   For example:

   FETCH,IMSL/MNFRM.

   FETCH,EISPACK,FUNPACK/RUN.

   This provides the following:

   a) Makes both machines identical (from user point of view) for usage of libraries, and makes documentation consistent for users (not to mention manageable for maintainers).

   b) Decreases the memory load on users; they need only remember our unique compilerstring associations rather than a host of specific names for libraries compiled with/for a specific compiler. That is, the organization is across compilers as opposed to libraries.

   c) Tends to follow CDC convention of numeric versions; COBOL3, FTN4, etc.

   d) Allows reasonably simple, understandable capabilities for changing compilers.

   e) Increases the capability for "versions" beyond the current triad of PAST, CURRENT, FUTURE.

   A further addition allowing the FETCH of a compiler itself aids in the understandability and flexibility of FETCHing; consider the procedure "P":

   P.

   FETCH,FTN/VERSION.

   FTN.

   A typical call:

   CALL(P(VERSION=FTN 4))

   Results in:

   FETCH,FTN/FTN4.

   FTN.

   The above illustrates the ease in selecting a compiler by remembering the compilerstring. Additional FETCHes for libraries are/can be made in the same manner.

Formally proposed change: make CALLPRG recognize:

$$FETCH, f_1 = p_1, f_2 = p_2, \ldots, f_n = p_n / string.$$

where f_i is a choice of the user and defaults to p_i, p_i is a name defined in the CALLPRG index and string is a name chosen by UCC to represent a particular processor.

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WRITEUP Proposal – by T. D. Hodge and D. Laliberte

1. To permit files designed for timesharing or lineprinter output to be listed on either:

    a) Add a new parameter to the writeup index entries (called TT here) which indicates that the file is designed for timesharing output only. Default is for lineprinter output.

    b) Add to the writeup control card a parameter PT (PT=TT or PT=LP) to alter the default printer type.

    c) Test job origin rather than output destination. If the job origin is TELEX then format for timesharing output.

        If the file is being sent to the terminal output file

    then if it is a TT file
          then output normally
          else delete the carriage control characters (column 1)
    else if it is a TT file (being sent to alternate file)
          then copy shift the file
          else output normally.

2. To permit files to contain full ASCII character set:

    Add a new parameter to the writeup index entry (called LC here) which indicates that the file contains lower case characters.

    If the file is being sent to the terminal output file (or
    if the job origin is TELEX)
    then output normally
    else delete all 76 codes.

3. To permit accessing writeups modified after a certain date:

    The date parameter can appear anywhere on the writeup control card. DATE=<date> will list only the writeups specified which have been modified since <date>.

    To determine the date of a particular writeup, if it is a normal file saved on YZE6000,SP then the date can be gotten from a catlist. If it is an indexed file and subwriteups are specified then the date of each subwriteup is obtained from a $DATE=(date) directive after the record name of each subwriteup. If none appears then the date is assumed to be zero, causing the file not to be listed unless the user specifies DATE=0. The date of a file kept on tape can be found using the TAPES control card.

4. To permit writeups to be kept on tape:

   Process all tape related parameters on the writeup index entry
   as for CALLPRG.

5. Delete all trailing blanks when outputing the writeup index.

6. WRITEUP,INDEX,DATE=(date).
   could give entries on the index for which the files have
   been modified after the date.
   The last mod date will be gotten simply form the last
   mod date in the writeup index.

7. Local writeup index for testing new writeups.

   Try $WRITEUP if it exists. If the entry doesn't appear
   there then try the normal WRITEUP file.

8. Each name on the writeup control card (except subwriteup names) should
   start a new page if output is lineprinter. If a writeup is formatted
   for lineprinter (LP) then do not insert a page eject. Is there
   a "ensure top of page" carriage control character?

9. Postprocessor for writeup in the future. After all files have been
   prepared, a standard editor/formatter could be called to message the
   output   according to directives in the file. We have no such general
   purpose, nice formatter yet, except maybe typeset.

10. Add an explanation of WRITEUP parameter defaults to CALLPRG documentation.

SYSTEM MAINTENANCE: People and Procedures

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

1. MERITSS operating hours have been changed. The system now comes up at
   7:30 a.m. M-F and shuts down at 1:30 a.m. M-Th.

2. Kevin Matthews' discussion of who gets CPPF (protected permanent file
   permission) resulted in the following decision. All non-student user
   numbers will receive the bit.

3. Someone raised the question, "When do we turn on AUTODIVERT?" Answer:
   As soon as Bill Sackett finishes DVTVAL. We expect it to be working
   within two weeks.

4. Larry Liddiard described a new offer from CDC for NOS. We all decided
   that changing to NOS now would mean too much work for too little benefit.

5. The following proposals were discussed.

   a) Bill Elliott's proposed Tape Reservation Pool was accepted (see DSN 2, 18 p3).
      We all favored an automatic letter writer which issues warnings that
      a reserved tape will soon be returned to pool storage. It was suggested
      that we allow users to specify how long to keep the tapes. Initially,
      the tape reservation pool will be available to staff members only.

   b) Bill Elliott's proposed SCRATCH control card (see DSN 2, 18 p2) was
      approved.

   c) Bill Elliott's proposal to install a new CMRDECK command which specifies

the current SYSPROC file (see DSN 2, 18 p3) was approved. It was suggested however, that the file name not be stored in low core. A better place would be the system control point area.

d) Kevin Fjelsted's proposal to allow WRITEUP to handle upper/lower case writeups was approved. We will discourage the use of upper/lower case writeups since the cost to convert an upper/lower case writeup to upper case for line printer listing is about one cent per page.

e) Kevin Matthews' proposal to change the formula used to map a 6 bit time limit index into a time limit (see DSN 2, 18 p4) was approved with the following change. If the 6 bit index is interpreted as 4 bits of shift count (S) and 2 bits of mantissa (M), then time limit = $(2m+1)**S$. Note the change in the formula.

f) Kevin Matthews' proposal to enhance 1AJ to check for a FIT in addition to a FET (see DSN 2, 18 p5) after abnormal program termination was approved. It was noted that 1AJ probably (later confirmed) had the code to check for a FIT but wasn't working properly.

g) Kevin Matthews' proposed changes to LOADPF/DUMPPF were approved (see DSN 2, 18 p5).

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System Strategy Committee Minutes - by T. W. Lanzatella

The following discussion relates to meetings held on 76/09/20 and 76/10/01. Not every topic brought up at System Strategy meetings is mentioned here. Only those topics which have some tangible effect or lasting meaning to the rest of the staff are mentioned.

1) Because of the lateness of consideration of the new CALLPRG DO file type, we will let Earl Schleski's program X remain on the 6400 CALLPRG index. Earl should prepare to do away with X by June 15, 1977.

2) N. L. Reddy expects to begin running the new 1TD during system time in October.

3) Users on the 6400 are XEDITing CHECKPOINT/RESTART files and attempting to restart the job resulting in **BAD rollout files filling up the FNT. Any volunteers?

4) Operators should always type the following at End-of-Operations:

   MAINTENANCE.
   IDLE.
   UNLOCK.
   STEP.

This will exercise the CPU but leave the disks and PPUs idle. Operators should never UNSTEP the system when restarting.

5) The 6400 should be deadstarted with ECS off on Saturdays due to system activity on the CYBER 74.

6) How should we document the system if we diverge form KRONOS/NOS?

a) Changes should continue to be proposed in some detail in the DSN.

b) For extremely large changes, machine retrievable documents describing technical details of the feature should be prepared after the feature is installed. Sample topics: DELAYQ, USERECS, MASTER USER, PFM - protected permanent files and DIVERT.

c) If we were to index the DSN, proposals could suffice as final documents in some situations since nearly all changes to proposals are mentioned there.

d) Large changes should be reviewed after installation to see if implementation was complete, e.g., DELAYQ and DIVERT.

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CALLPRG and LIBRARY TAPE MODIFICATIONS - M. Riviere

On September 27, John Strait transferred the future version of PASCAL and its library, PASCLIB from CALLPRG to the Library Tape. With this change the future versions of PASCAL and PASCLIB became the current ones. John also set up the versions used until that date as PAST type CALLPRG packages.

On the same date, I modified the PFM routines on FT3LIB. I modified their code to make them abort on PFM errors, included a no abort-error code return parameter and added a GETPF entry that is equivalent to the already exisitng GET entry but allows decks set up for FTN4 to be also used with FTN3 or MNF. With this modification the PFM routines act similar in both libraries (FT3LIB, FORTRAN).

The following changes took place on the CALLPRG index on September 27: Howard Kurs removed COBOL 5 and all its associated products. Howard also added a new entry for a version of SRTLIB, FETCH type. SRTLIB is a library needed when using SORTMRG 4 macros with COMPASS.

S. Yen introduced an on-line version of SPSS, SPSSONL, and a new set of BMDP programs. SPSSONL is installed on the 6400 as well as on the CYBER. The BMDP programs are control card callable and are offered to users for testing. These new packages are announced by M. Frisch in the UCC Newsletter.

Dennis Lienke added future versions of APEX and GPSS. Dennis also inserted entries for two new control card callable packages, SSAP and NSAP. SSAP and NSAP are a linear and non-linear system of structural analysis programs, respectively. Dennis has an article about this package for the UCC Newsletter.

I modified the new version of RUN to correct a problem related with the job's field length.

On the 6400 section of the CALLPRG index Kevin Fjelsted introduced a new version of APLUM as the current version and made the current version to become past. This arrangement makes the past version of APLUM on the 6400 equivalent to what is available as the current version on the CYBER.

Michael Skow added a new DO procedure to the permanent DO procedure's section of the 6400 section of the CALLPRG index. This procedure is called DUAL and it is set up for Duluth art languages for graphics terminals.

On October 11, I removed CBSTEXT from the Library Tape by request of H. Kurs. CBSTEXT was a product in the system associated with the COBOL 5 package that was dropped last week.

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I also made modifications, submitted by M. Frisch and B. Hanson, to FT3LIB on the Library Tape and to FUTURE, FORTRAN on CALLPRG. Michael removed OO codes in column 1 on PRNPLOT output, recompiled LENGTH to get rid of the CPC calls and added a new routine, GRIDIT, to generate gridded data from ungridded data. Brian modified PROCPAC by changing the parameter's common deck to make it inaccessible from FORTRAN and setting its size to be the same for all the subroutines. Brian also changed PROCLFN to process the new form of DISPOSE and some other macros.

On October 11, D. Lienke change the 6400 section CALLPRG index entry for SIMPLX to make the past version of the CYBER (the one associated with FTN3) the one retrieved as the FETCH type on the 6400.

Also on October 11, A. Mickel set up a version of MIXAL on the 6400 section of the index. This is the same version used on the Cyber but installed on the 6400 to avoid the waiting time involved with 6400 XM type CALLPRG files.

Also on October 11, J. Strait changed PASCAL and PASCLIB on the library tape. This change consists of the corrections to four minor bugs that were not catastrophic, according to John but could cause some problems to inexperienced users.

I will be making a new Library Tape and a new CALLPRG index with all the modifications submitted by October 14, and releasing them for production on October 19. The tape and the index following these will be released for production on November 2. Modification for the November 2 tape and CALLPRG index should be submitted by October 21 at 12:00 p.m.

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A Little Bit, Once Again, About CALLPRG, WRITEUP and the
Library Tape – M. Riviere

With the merged System my work of maintaining the common Library Tape, a semi-common CALLPRG index and separated WRITEUP indices has largely increased and I need a little bit of collaboration from every one that is requesting modifications in this area in order to simplify my work.

All that I need so far is that my old procedures for requesting changes be followed. This may not imply extra work for the people that are already doing it, to whom I am very thankful. It may imply, however, some small inconveniences for the ones that either forgot about or do not know about it yet.

I will repeat the procedure here for everyone to be informed and I would appreciate it if they can be followed. Otherwise I will have to turn back modification requests until they agree with my requirements.

I. Binary Files of Modifications for the Library Tape and some CALLPRG Libraries

  1) Place the binaries on permanent files on the YZE6007 account number on the STF pack on the CYBER.
The YZE6007 account is an RFM account.
(Files that reside on the CALLPRG account number do not need to be transferred. Be very clear to specify the file's name in this case.)

  2) Name the files with names that reflect somehow their contents.
When the file contains full products, name it as one of the products

that it contains.

When file contains binaries for a library, name it with a name such that shows your name, the library and the library section, when applicable, (e.g., MRSYSLD: M. Riviere Loader routines section for SYSLIB).

3) When submitting modifications for FORTRAN, SYSIO, SYSMISC or SYSLIB submit a file(s) containing the full section(s) that you maintain in the library instead of only the binary of the modified routines.

4) Make sure, when submitting library modifications, that the submitted file contains only the relocatables and it is not in ULIB format.

5) Send me a catalog of the products and an explanation of the reason for the changes. When the file is a section of a library, show in the catalog the routines that have been modified.

6) Keep backup copies of the submitted files residing in YZE6007 if you still will need them. I may be purging the products after a new tape goes into production.

7) Request the Library Tape modifications early enough to allow me to announce them in this Newsletter. Modifications should be submitted up to Thursday noon on the week previous to the publication of this Newsletter.

8) Note that your modifications will be made a week from the ~~Thursday~~ TUESDAY following the deadline of Thursday noon. If you need a rush change to take place sooner than that please request it specially.

II. CALLPRG INDEX

1) To modify the CALLPRG index submit the index cards, the cards with the description of the modifications and the needed MODIFY directives for CPOPL.

Test the MODIFY directives by inserting the new index cards on CPOPL and test the new index cards in a local CALLPRG index when possible.

For the format of the index cards list the WRITEUP CALLPRG. For the format of the comment cards with description of modifications and modify identifiers, obtain a list of CPOPL with the following job:

```
FETCH,CPOPL.
MODIFY(P=CPOPL,C,Z)+*EDIT CALLPRG
R(COMPILER)
CS(COMPILE,OUTPUT)
```

2) The CALLPRG index modification schedules are similar to the Library Tape schedules. Refer to items 7 and 8 on I for information about when to submit modifications.

III. WRITEUP INDEX

1) When sending the cards for the WRITEUP index, specify if they are to be placed on the CYBER index on the 6400 INDEX or in both.

2) Submit two cards for each writeup. One card should contain the index entry for the CALLPRG program to locate the file and the other should contain a description of the list including length, size, date, etc.

List the WRITEUP index for a description of the card's format.

3) Submit separate cards for each one of the indices (CYBER - 6400).

4) Specify if the writeup has to be available at a given time. Otherwise I modify the index once a week, usually on Fridays.

IV. 6400 CALLPRG and WRITEUP Index Files

You are in charge of installing and maintaining your files on the 6400 as well as in the CYBER.

The CALLPRG and WRITEUP account number on the 6400 are RFM accounts and everyone that was validated for the CYBER 74 is now validated on the 6400 to handle files on the same accounts.

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Library Tape and CALLPRG Procedures at Deadstart Time - M. Riviere

The Library Tape used by the CYBER 74 and the CDC 6400 merged System contains three different files.

The first file contains products that are used only by the CYBER 74. The second file, empty for the time being, should contain products that are going to be used only by the CDC 6400.

The third file contains the products that are common to both machines. I selectively Sysedit at deadstart time the corresponding files in each machine.

I make three copies of the Library Tape. One copy for each computer and a common backup copy. I write the 6400 copy and the backup copy on seven-track tapes and the Cyber copy on none-track tapes.

I set up a procedure that provides the tape label at Deadstart Time for the deck that Sysedits the library files. I select the nine-track tape to be used on the Cyber. In the event that the nine-track tape is not available, purging of the job that is waiting for the nine-track tape will direct the procedure to request one of the seven-track copies. In the event that the nine-track tape drivers are off, the procedure will automatically request the seven-track tape copy. I select a seven-track tape to be used on the 6400.

I associated each set of three tapes by the VSN numbers. LF200X is the CYBER nine-track copy, LF001X is the 6400 copy and LF000X is the common backup. The three tapes in each set have identical contents, but the way on which they are assigned may help to locate them. I have 10 sets of tapes. This is a large enough number to allow me to keep any changed or discontinued products for a while. I advance through the tape's numbers in a circular way. However, I may skip sometimes, one or more set of numbers between two consecutive released tapes.

I schedule the Library Tapes to be started on production runs on a given day at a given time.

Following the advice of the System Strategy Committee   I am releasing new tapes to go into production during regular working hours.   I am scheduling new tapes to go into production on Tuesday mornings.   I am releasing a new tape each Tuesday following the week in which a new Deadstart Tape was released.   The Tuesday morning choice allows the starting of a new tape almost at the same time on both computers, following the early Tuesday hours of System's time.

At the time that a new tape goes into production I update SYSMODS with a description of the tape's modifications.   I schedule the new tapes to go into production, as near as possible, at the same time in both computers.   I write the information on SYSMODS, however, only when the tape goes into production in the CYBER.

On Systems time, I use the future tape if one is available. This may allow the testing of some new products.

The handling of the updating of the CALLPRG index is similar to the one that I use for the Library Tape and it is done by the same deadstart time procedures.

I keep the source of the CALLPRG index in a MODIFY OPL library and I replace the index by the one created from that source. Any local modification to the CALLPRG index made in an emergency in any one of the two computers should be requested to me as a new modification in order to ensure that it is made permanent.

CYBER 74 Deadstart Dump Analysis
From Friday, September 17 to Thursday, October 7

Sunday, 19 September

16:54 (DD-10) 1CD hung. The 1CD problem was solved by N. L. Reddy and there were no more 1CD hangs after 20 September, since the problem was fixed on 21 September.

Monday, 20 September

04:14 (DD-4) All kinds of junk appeared in low Central Memory. This happened during our weekly full dump of permanent file devices, so there wasn't much system activity. No clues as to the cause yet, although a guess would be that since many PPU's were in the idle loop, this might be a manifestation of our suspected idle loop problem. (See 1 October).

11:40 (Dumped to Printer). 1CD hung.

Tuesday, 21 September

13:45 (DD-7) The System simply hung up. Word 2, the PPU library directory pointer, had been wrecked. PP31 was executing a copy of CIO even though it had not yet read a CIO request from its input register. No resolution yet, although it may be another idle loop problem.

Wednesday, 22 September

12:52 (DD-10) Export hung. The problem (a long standing one) was fixed the next day.

Thursday, 23 September

13:07 A chair bumped the console and the scopes went blank.

Saturday, 25 September

15:28 (DD-11) CPU monitor hung.

  Investigation revealed an old problem. PPU 0 (MTR) issued an exchange jump instruction (MXN) exactly while the CPU was processing a mode 2 arithmetic error at some user job. An arithmetic error also generates an exchange jump (eventually). It appears that the error condition was somehow transferred to the exchange package of CPU MTR. The CDC engineers are investigating this problem, which is tough to duplicate because the timing must be just right.

Wednesday, 29 September

16:23 (DD-1) 1MT/1LT hung processing errors on a long tape. WJE unable to determine exactly where the hang occurred. Some testing will be done in an attempt to duplicate the problem.

16:53 (DD-12) 1MT/1LT - same as above.

Friday, 1 October

19:20 (DD-12) The idle loop problem. CPUMTR told PP11 to process a 1MT request, but PP11 never got the message. We are pretty sure that it left its idle loop in high core, executed some irrelevant code, and eventually hung. This problem can also be seen in the 12 September hang reported in the last DSN. We have added some temporary code to 1IL, the idle loop program, hoping to trap the problem.

19:57 (DD-13) PFM hung on a bad permanent file belonging to Mickel/Strait. Another level three deadstart and a level zero were then performed in an attempt to clear up what looked like an error in the TRT for the device. These didn't help the problem; the file had to be purged from the console by WJE. The file may have been wrecked during the deadstart at 19:20, but we can't really see how.

Tuesday, 5 October

13:06 A chair bumped the console again, causing the scopes to go blank. We didn't get a dump of the system. We have asked Operations to give us a dump from now on when chairs cause system hangs.

6400 Dump Status - by R. A. Williams

DATE	PROBLEM SYMPTOMS/SUSPECTED CAUSE	TAPE
76/09/20	TELEX (Terminal Executive) aborted with a program stop at address 213. There is no executable code at 213 so evidently an improper jump was made. There were ECS problems on this day but ECS had been turned off. No dump is available due to an error in the default settings of TELEX sense switches.	N.A.
76/09/22	026 was being used. Each key that was hit caused a display of garbage on the screen momentarily. Finally, the scopes went blank.	DDT-4
76/10/01	844 disk channel 6 hung full after refusal to respond to a general status request.	N.A.

DATE	PROBLEM SYMPTOMS/SUSPECTED CAUSE	TAPE
	This is probably the result of a hardware problem that shows up every three or four weeks.	
DAILY	TELEX has produced DPT (drop pot) errors and has a hung port on quite a few busy (over 50 users) days. This is worse than with Level 7.	SEE ME
76/10/09	The scopes went blank. No investigation has been done yet and no clear cause exists.	DDT-15