What do you mean -- the computer's down again???!!!

TABLE OF CONTENTS

6600 OPERATING HOURS

	12:01AM	3AM	4AM	6AM	8AM	2PM	8PM	Midnight
Sunday								
Monday								
Tuesday								
Wednesday								
Thursday								
Friday								
Saturday								

▨ LAD only   ▨ LAD,EXP,WB

Medium Speed Remote Terminals

Room N640 Elliot Hall (Mpls)
Room S191 Kolthoff Hall (Mpls)
Room 321 Mines & Metallurgy (Mpls)
Room 38 Electrical Engineering (Mpls)
Room 321 Horticulture (StP)
Room 17 Agricultural Engineering (StP)
Room 54 Business Administration Tower (WB)

Useful telephone numbers

373-4876 Manager, Operations (R. Folden)
373-4599 Manager, User Services (T. Hodge)

373-4548 Account Clerk
373-4995 EBR Operator
373-4596 EXP I/O
373-2521 Keypunch Supervisor
373-4995 LAD Shift Supervisor
373-4994 Recorded Message
373-7744 Reference Librarian
373-4995 Tape Librarian
373-4360 UCC Office
373-4921 User's Room (LAD)
373-3608 WB I/O

Locations of UCC keypunches

Mpls		StP		WB	LAD
134 Burton	(1)	17 AgEng	(1)	90 BldgII(2)	User's Rm(4)
12A Chem	(1)	302 Coffey	(1)		
38 ElecE	(2)	384 Hort	(1)		
208 ExpE	(7)				
131 ExpE	(1)				
130 ExpE	(2)				
12A MinMet	(1)				
69 Phys	(1)				
125 SpaSci	(1)				

REFERENCE MANUALS

Copies of the reference manuals listed below may be found in the
Users' Room at Lauderdale and in Room 140 ExpEng. If you feel
other manuals would be appropriate, please see Mrs. Koepke,
Room 227 ExpEng.

GROUP I - CDC reference manuals

Title	revision level	publication no.
SCOPE 3.2	L	60189400
ALGOL	D	60306100
COBOL V3	D	60253000
COMPASS V2	D	60279900
FTN V3	J	60176600
FORTRAN 2.3	F	60174900
OPTIMA V3	A	60207000
PERT	B	60133600
SIMSCRIPT	C	60178300
SORT/MERGE V3	D	60252600
SIMULA	E	60234800
KRONOS MODIFY	B	59151100

These manuals are published by Control Data Corporation.
Copies may be purchased from the Reference Librarian, Room 229
ExpEng. Other CDC manuals are available in the library.

GROUP II -

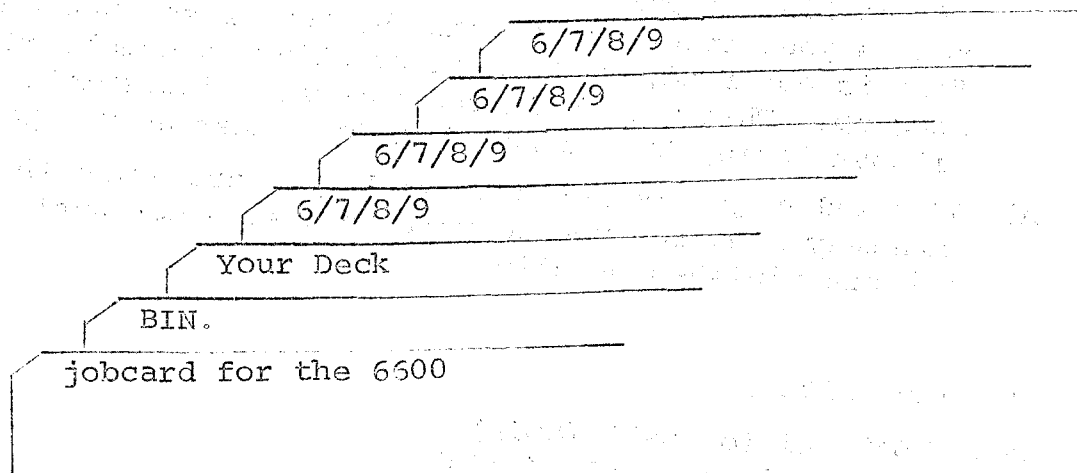| Title	Publisher
BMD	UCLA Press
BMDX	UCLA Press
SPSS	McGraw-Hill
SPSS Supplement	UofM
UCC Users Manual	UofM
MNF	UofM
UMST	UofM

Notes:

1) The BMD & SPSS manuals are available in the Engineering
    Bookstore and in Smith Bookstore (WB).

2) The OMNITAB Reference manual is on order and should be
    available soon, both in the User Rooms and in the book-
    stores.

3) The MNF reference manual may be purchased at the
    Engineering bookstore.

4) The UMST & UCC Users Reference Manuals are out-of-print.
    The UMST manual will not be reprinted. The Users Manual
    should be available by winter quarter.

SIMPLIFIED INSTRUCTIONS ON USING THE UNIVAC 1004 AS A REMOTE TERMINAL

1. Set only manual alteration/SWITCH. then press START,CLEAR,RUN
2. Dial 6-7050 (if busy try later), wait for high pitched tone, then pull up white post on telephone cradle.
3. STEP LIGHTS 14 and 15 on the far right side of the 1004 should begin blinking. If they don't, go back to step 2.
4. Load your deck into the reader as if you were listing, but follow it by at least 3 cards with 6/7/8/9 multi-punched in column 1.
5. Push the READER-OFF button (i.e., turn the reader on!!).
6. Set only SWITCH 1, then press START,CLEAR,FEED,RUN.
7. Set SWITCH 2 and clear SWITCH 1. Reading should start within a few seconds.
8. When your job is done reading you may either wait for it to print by setting SWITCH 1 and clearing SWITCH 2
9. OR you may disconnect from the 6600 and return later to get your output. To get your output later, follow steps 1 through 3 and then leave SWITCH 1 only set.
10. After you are through you must set SWITCH 4 only, then wait ten seconds and hang up the phone.

Deck Structure for the 1004:

SPECIAL NOTES:

a) Any problems you may encounter should be reported to the person locally responsible.
b) Always disconnect after use. Any terminal which idles for five minutes is automatically dropped.
c) The 1004 should not be used to print jobs which exceed 30 pages or so in length.
d) We would prefer that you run tape jobs through the high speed terminals since operator-to-operator communication is available to resolve difficulties. If you must run a

job which uses tapes, please send a message to the 6600
operator to inform him of an impending tape mount. To do
this, use the following message card immediately preceding
your deck:

```
*M,7777   L   Ø
          H   I
          Y
```

where 7777 is your tape number, L, H, or Y is the tape
density (L=200, H=556, Y=800 bpi) and Ø or I specifies
writing on the tape (Ø=disable write, I=enable write).

BE SURE to place a 6/7/8/9 card between your message card
and the deck.

e)   There is only one error message currently possible. This
     message is JOB CARD ERROR. This means that the 1004 has
     rejected your job card and you must rerun after correcting
     your job card.

f)   The 1004 can be used as a lister by setting SWITCH 3 (after
     disconnecting from the 6600, of course).

g)   If a card read error is observed or suspected while you are
     reading in your deck on a 1004, hang up the 1004. This
     should abort the job. Then call in again to the 6600 and
     re-read the job.

     If the 1004 is printing another user's output at the time,
     remove your input cards from the hopper so that the end-of-
     file is not read, wait until printing is completed, then
     hang up. This will kill the incorrect incomplete input
     without losing the output from the other user's job.

h)   If another job is printing while you are using the terminal,
     courtesy requires you to wait to disconnect until that
     job has finished printing.

Terminal sites:

Room N640   Elliot Hall (Mpls)
Room S191   Kolthoff Hall (Mpls)
Room 321   Mines & Metallurgy (Mpls)
Room   38   Electrical Engineering (Mpls)
Room 321   Horticulture (StP)
Room   17   Agricultureal Engineering (StP)
Room   54   BA Tower (WB)

MNF CORRECTIONS

The following corrections have been made to the MNF I/O and TRACE routines INPUT$, OUTPUT$, INOUT$, and TRACE$.

1. An execution-time error message is given if the character length of an ENCODE or DECODE statement is not 1.LE.character length.LE.150. Previously the executing program would often mode exit without indicating the real problem.

2. End of Record (EOR) sensing has been changed to conform to previous Fortran conventions (i.e., we admit that our attempt to change this world was wrong). Thus an EOR on the INPUT file is treated as an End of File (EOF) and an EOR found on other input files is ignored and the record following the EOR is the new input record.

3. The TRACE FORMATIO error message correctly puts out the octal address of the list element rather than the type name garbled in the last character.

4. An output field of F1.0 puts out a * unless the value is zero (0 is output) or minus zero (a blank is output). Previously a period (.) was put out if the internal value was 0.1LE.value.LT.0.5. Output fields of Fx.0 where x is $\geq$ 2 now put out a 0 rather than a period if the previous internal value was found.

5. Garbled messages will no longer occur when a TRACE message is output during processing of an I/O list. The error had been introduced in PSR8's code to make the I/O routines re-entrant for one level in order to prevent TRACE messages from destroying the current I/O buffer.

6. The FET status word is cleared so that the end-of-file flag is cleared after .END.=statement number is used in an input statement. Thus, .END.=statement number operates in a manner corresponding to IF(EOF,i)sn_1,sn_2.

    Also, an end-of-file (EOF) is processed in the same manner as in the RUN/FUN compilers.

7. Under CDC I/O option the bug which caused the memory from /CIOBUF/ to FL to be filled with zero codes is fixed. This only occurred when a P format specification was not preceded by a digit or if the compile time FORMAT checker had eliminated the digit.

          Failure Examples:
                  10 FORMAT(3PE20.10,PE10.4)
                  20 FORMAT(2PE20.10,0PE20.6)
          where the FORMAT cracker had reduced the format to
                  (2PE20.10PE20.6)

The following changes specifically affect the KRONOS version:

8. Under KRONOS, INPUT$ has been modified so that when any file is first opened, if the file OUTPUT exists, is non-empty, and is not busy, a WRITE RECORD function is issued. This ensures that a previous line to be printed on the teletype is written out before the first question mark is written denoting the request for input on the terminal.

9. Under KRONOS, the 150-character buffer is put out in two records of 75 characters rather than as 80 and 70 records.

10. Under KRONOS the automatic *   * line break for TELEX is inserted in long error messages for the I/O and TRACE routines to get 2-line error messages that will fit on normal interactive terminals.

11. Under KRONOS, the default FORMAT-free parameters in the common block /FREEFOR/ are as follows:

```
line length=72 rather than 136
width=W=10
decimal digits=D=4 rather than 6
```

The field specifications are changed to

```
INTEGER   I(W) rather than I(2*W)
REAL      G(W).(D) rather than G(2*W).(2*D)
DOUBLE    G(2*W).(2*D) rather than G(4*W).(4*D)
COMPLEX   2G(W).(D) rather than 2G(2*W).(2*D)
```

Example of the use of the /FREEFOR/ common block

```
PROGRAM OUT(OUTPUT)
COMMON/FREEFOR/II(3)
II(2)=14
II(3)=7
J=2**42
X=3.141592
PRINT,J,X
```

Then J would print in a I14 field rather than I10 and X would print in a G14.7 rather than a G10.4 field.

LINEAR PROGRAMMING

UCC has acquired APEX, a linear programming system from Control Data. Preliminary tests have shown the code to be very fast and reliable, its speed resulting from special techniques which allow a problem to be solved in-core. Problem size is limited only by the central memory storage capacity. A suitably sparse problem with a thousand or more rows is well within the capability of the system.

One of the outstanding features of APEX is its versatility. Control can be exercised on three levels:

- Processing can be initiated by a single MOMS control card on which a number of options may be specified. This easy-to-learn level of control is suitable for most applications including student jobs.

- A control language program can be written to monitor and guide the solution of a complex problem or sequence of problems. APEX processing is controlled by setting, testing, and branching on certain cells in a special communications region.

- APEX subroutines can be called from a user-designed program written in Fortran or COMPASS. This option is available for very sophisticated applications.

Since APEX is fully supported by CDC, we will receive all corrections, improvements and extensions to the system. Thus, the addition of a mixed-integer programming capability is expected at some future date. As a condition of this support, APEX is available only to educational (non-commercial) users of the CDC 6600.

Every attempt will be made to maintain the computational integrity and stability of the APEX system. To achieve this, UCC will avoid making modifications to any algorithmic processes relating to optimization. We do, however, reserve the right to adapt the overall logic of the code to run efficiently within the MOMS operating system.

APEX manuals are available from UCC at a cost of $3.40. For more information call Dennis Kuba (612/373-4886).

LIBRARY CHANGES & ADDITIONS

As announced in the August and September newsletters, the
following subroutines and functions were dropped from the
system on October 10, 1972. Users needing copies of any of
these routines should call Mike Frisch at 373-5907.

CMDP	LINEINT (replaced by CINTEG)
CNVRT	LOCUS
BLNKZRO (replaced by SPACZRO)	MTTESTR
ZROBLNK (replaced by ZROSPAC)	MXINV (replaced by MXLNEQ)
CREAD$	NRAN (replaced by IRAN)
NPUT	ORTHON (replaced by ORTHON2)
OCIF	QLENGTH (replaced by QLENTH)
DESCRIB	QR (replaced by QRSYM)
DPCM	RANDEV (replaced by NORMAL)
FLOT46	RAN1F (replaced by RAN2F)
INT46	RKGHN (replaced by RKGILL)
JACOBIN (replaced by QRSYM)	SCALE (replaced by SKALE)
LINE (replaced by LYNE)	
LINE1 (replaced by LYNE1)	

Library modifications: October 3, 1972

Revisions:

AITKENF	- Version which uses PROCER (see below)
AMEAN	- Faster, shorter version written in COMPASS which uses PROCER
MEANVAR	- Faster, shorter version written in COMPASS which uses PROCER
MXEXTRM	- Faster, shorter version written in COMPASS which uses PROCER
CONVERT	- Faster, improved version which uses PROCER
IVLFREQ	- Faster, improved version which uses PROCER

New routines:

AMEAND	- Function written in COMPASS; REAL mean of REAL array using DOUBLE PRECISION arithmetic
PROCER	- New error processing subroutine. All library routines will eventually be converted to use this subroutine.

********* A NOTE TO INSTRUCTORS OF STUDENTS USING THE CDC 6600 *********

A memorandum was sent early in the quarter to instructors who
have students using the CDC 6600. The memo discusses the use
of MNF, MFF BATCH, and other compilers and packages at ExpEng
and at the 1004 terminals. If you want a copy of the memo,
please come to 227 ExpEng and ask for one or call 373-7744.

THE SUGGESTION BOX

Q. Please offer short courses on UPDATE, MODIFY, SNOBOL, ALGOL, COBOL, or whatever --

A. To justify offering a course, we need assurance that an adequate number of people will attend. Anyone interested in a short course should call Amy Koepke (373-7744) and have his name added to the list.
    When we have enough interest we'll offer a course.

Q. So what's MOMS? What happened to SCOPE?

A. MOMS is the system currently running on the CDC 6600. Its basis is SCOPE 3.1.6 with many features from MACE. There also are extensive local modifications. MOMS runs the job mix at the University approximately twice as fast as would SCOPE 3.2.
    The name has appeared on the heading of your dayfile for several years. MOMS is an acronym for:

    　　　　M mine
    　　　　O ours
    　　　　M MACE
    　　　　S SCOPE

Q. With a slight change in the library program the computer could be programmed to ignore everything after a 4/8 punch in Fortran programs, making it possible for programmers to reuse old cards.

A. This is false economy; we already recycle used cards. Also the 4/8 punch is already used for another purpose.

Q. Why not add an S option to MNF (S is short for "Stick the computed program out on a file in overlay format"). Then
    MNF(S)
    LGO.
    LGO.
would work the same as
    FUN(S)
    LGO.
    LGO.
and seems more "natural" than the present
    OVERLAY (LGO,0,0).
I suggest
    S = filename
with LGO default. If done right then
    COMPASS.
    MNF(S,B = LGO)
    LGO.
would even work.

A. MNF was designed as a load-and-go compiler and thus its "natural" form is not to produce an overlay. Compatibility with current CDC compilers seems to indicate that overlay is a semi natural way to impliment this feature. S as a parameter is currently used for System Text.

Q. *In the August newsletter, a user asked why he couldn't re-run jobs with the sequence*

        $P, C, \ldots, PW = \ldots$
        $P, \emptyset, \ldots$
        $FUN(S)$

The solution is to always use this sequence

        $P, C, \ldots, PW =$
        $D, \ldots$
        $P, O \ldots$

If he makes his decks this way he will have no problem re-running them

A. P,C,... fails if the subdirectory exists so this doesn't help much. Also, if

        P,A,...
        D,lfn

then the subdirectory must be initially created. I still don't understand why the file creation can't wait until the program is debugged. Why use pack space and pay for it until it is of some benefit?

Q. *Why is there no UMST manual at Lauderdale?*

A. It's been stolen. We will replace it. We are however, running out of copies. If this one is stolen you will have to use the one on reserve in the UCC library.

Q. *How about an option to call CATLOG for all files on a subdirectory?*

A. Not practical in light of the fact that the user can now catalog files. LISTPAK catalogs file names, etc.

Q. *Have the computer charge dependent also on the amount of core used instead of just time. This would encourage efficiency.*

A. There are two schools of thought on this matter and your
'   suggestion is used at several other universities with CDC 6000 series machines. However, UCC has taken a different tack in that we give lower priorities to large core and/or large CP time programs. This means we encourage small field length programs by using the carrot called "response time".
Also note that "more efficient programs" does not just mean smaller sized programs that consist of many overlays as these may use up large amounts of system time in order to obtain the efficiency of small size.
Future developments in scheduling and executing jobs will be based on small size and speed of execution and jobs not meeting this will be rolled out in order to allow jobs with these "goodness" criteria to proceed more quickly.

Q. *Post a copy of this newsletter so I can read it.*

A. We could say "we'll mail you a copy, just ask!" but you're quite right. We were discourteous in not making the newsletter more available. Copies will be placed in the User's Rooms and on the Bulletin Boards.

Q. *How about a phone and an SPSS Manual in the User Rooms.*

A. Will be done.

Q. *Please put out a copy of all manuals.*

A. We are looking into locking systems to secure manual sets at all remote stations.

Q. *I would like to check books out of your department library.*

A. We are not funded to provide library services and don't feel we should take over a function of the Engineering Library. You are always very welcome to use our library holdings in our office.

Q. *When blocked tapes are received from other computer centers with output unit records that do not have a number of characters evenly divisible by 10, conversion is difficult. What are you doing about this? I am annoyed with buffering data in, shifting, and masking.*

A. We are aware of this problem and have assigned Rich Franta to write a program to handle tapes with various blocking factors, record delimiters, headers and trailers.

   If there are features you would like to see in the program, please address them (in a memo) to Rich Franta, UCC, 227 ExpEng, before December 15, 1972. We promise to have something workable before spring quarter.

Q. *Could words 0→100 and FETS be dumped for fatal errors involving files?*

A. Yes. Use this sequence
   Job card.
      .
      .
      .

   EXIT.
   DONT.
   DMPN(F)

Q. *Could "useless" dumps (e.g. for operator drop, not enough tape units, etc.) be discontinued?*

A. Not all these dumps are useless. For example, operators may drop a high time-limit job hung on a PS instruction (which happens). A dump at this point is helpful.

   In general UCC is studying the features available to the user. User specification of error termination processing

is one feature being considered.

Q. *For security LISTPAK should not provide an accessible list of account numbers. Since there is an option to list information on the files of a specified account number, there is no reason why the account number should be available to the general thieving public.*

A. We agree, although account numbers are in many palces such as the job output bin. We will change LISTPAK to list only those subdirectories having the same account number as the one on the user's job card.

Q. *Why don't you install an accounting procedure whereby certain accounts could, if they chose, pay a flat fee per month for private pack mounting in lieu of the current $1.00 per job charge. Some of the reasons for this are:*

    a) *The $1.00 per job charge makes private pack use prohibitive for accounts running 200,300, or 400 jobs per month.*

    b) *The $1.00 charge is not reasonable if the pack does not have to be mounted. A flat fee would be a fixed equitable substitute.*

    c) *You should encourage rather than discourage pack use as a substitute for tapes, since tape mounting is currently the major cause of poor throughput.*

A. a) A file used 200, 300, or 400 times per month should be kept on a UCC pack which is free to as many accesses as as the user wishes. If the file is large enough to make even this approach expensive then the user must realize that the cost of large, often used files is high and must be paid by someone. UCC offered the pack capability assuming it would pay its own way.

    b) The mounting charge is independent of operator actions to ensure that all job costs remain as uniform as possible. The availability of drives allows the operator to antici-pate pack usage and leave certain user packs mounted during certain periods of the day. The benefit to the user of these packs is better throughput even if the charge is still made. It is probable that the UCC packs (UCC001-UC005) will expand and curtail this practice.

    c) We encourage disk pack usage in lieu of tapes only if the cost factors justify it. The only way UCC (and most other installations) can control resource utilization by users is to allocate job costs to use of the resources. A file on a disk pack is much more expensive to maintain than one on tape. The user must balance this fact against what he wants and then decide what he will use (and pay for).

Q. *Why is CREAD$ being taken off the system?*

A. CREAD$ was a routine available only under Fortran Extended. It was used by few people because it required a fair amount of sophistication. We feel it was too specialized a routine to be in our subroutine library. Users who need a copy are again reminded to call Mike Frisch at 373-5907.

Q. *Please list (somewhere) minimum CM for utility routines please.*

A. Currently all utility routines will run with the default field length and thus by omitting CMxxxxxx from your job card you will have no problem.

Q. *Please fix the visual display. We want it.*

A. The display at Lauderdale is there only on an experimental basis and is not owned by UCC. It does not have priority since it requires a data set controller on the PDP-11 and if one of tho those ports goes down then the one used by the display is transferred to the active medium speed users.

We note that your suggestion implies that this display has proven useful, we will put this item into our list of suggested equipment purchases.

* *

A note to clarify a misunderstanding in the *September newsletter*:

The 026-21 interpreting card punch at Lauderdale may be interrupted for punching.

The 026-21 interpreting card punch in room 225 ExpEng may not be interrupted for punching.

REMOVAL OF OLD, USELESS, and/or UNUSABLE LIBRARY FILES

As of October 17, 1972 the following routines will not be
available:

1) FTN V2 object routines (these will still be available
   on FTNLIB)
2) ALGOL/SIMULA object routines (these will still be
   available on SIMLIB)
3) CHECKPOINT/RESTART (these are unusable)
4) COMBINE, COPYBCD, COPYN, EDITSYM, COPYX, PRINTB
5) Miscellaneous PP routines: RTO, LOC, CTS, OUT
6) LABOUT, LABOUT1, LABOUTC

NOTE: Items 1 and 2 above mean that the default loader (MMLOADR)
must be used. Neither PPLOADER nor CPLOADER will be able to
satisfy externals for FTN, ALGOL, and SIMULA.

LONG JOBS

Because of the possibility that a program may be dropped before
completion (for example, as a result of a power failure), every
program which is expected to run for substantial periods of
realtime should be written with some sort of checkpoint/restart
capability.

If it is not written with this capability and a failure should
occur, we will not automatically refund the lost time. However,
we will help you to design your program to incorporate a
checkpoint/restart capability. Call Dick Hotchkiss (373-5756)
or Larry Liddiard (373-5239) for advice.

A NOTE TO DISK PACK USERS

Users are reminded that they are responsible for removing unused
files from the 841 system packs UCC001 through UCC005. UCC
cannot purge files from these packs. We do not have any method
for determining which files should be purged.

Programmers and sponsors should be certain that all pack files
are carefully monitored. The problem sponsor will be liable
for charges incurred by pack files up to the time that the files
are purged by the user or by UCC at the request of the problem
sponsor.

CDC 6600 USE FOR SEPTEMBER

23,260 jobs

		average times:	min
from ExpEng	32.1%	on input queue	9.5
from Lauderdale	27.5%	at control point	5.7
from West Bank	11.3%	on output queue	4.5
from other remote terminals	21.8%	printing	1.9
for maintenance	7.3%		

COMPUTING FOR THE HUMANITIES

We are interested in the formation of a users' group of people using computers in art, in music, with graphics, in natural language processing, in journalism, and in other similar areas with common needs and interests.

If you are working with computers in one of these areas and would like to participate in the formation of a users' group, please complete the attached form and return to:

> Mrs. Thea D. Hodge
> Room 232 Exp. Eng.
> University of Minnesota
> Minneapolis, Minnesota 55455

☐ I would be interested in helping to form a users' group concerned with the use of computers in arts and humanities.

Name _____

Address _____

_____

_____ Telephone: _____

Area of Study _____