

KRONOS*--by L.A. Liddiard*

After a change has been made, it is essential that an organization look over its record when implementing such a change so that future changes will go more smoothly. Herewith, we present a brief report on the problems encountered during our latest operating system change.

The "free trial" period on Saturday March 13, 1976 revealed about 21 different problem areas, two of which were NOT fixed by the changeover day of March 21, 1976. An additional 20 different problem areas were found when we started using KRONOS Level 11 in normal production. Of these errors, 4 were corrected within 2 days of changeover, 6 were corrected within 4 days of changeover, and 7 were corrected within one week. Only 3 or 4 non-essential corrections took more than 7 days.

With this record, we think we had a fairly successful changeover and we thank all those users who helped check out the system on March 13th. We also thank those understanding users who had jobs impacted by system problems and who waited patiently for corrections. We also wish to apologize for these major problems during that first week:

- (1) BATCHER accepted input files but never returned any output to a non-Lauderdale terminal.
- (2) Status plotting was not available.
- (3) SUP10 was unstable (banner page information problems, wrong sites).
- (4) SEND was not available for Cyber 74-to-6400 jobs.

Next time, we plan to have more than one "free trial" period and we will ensure that the system staff has the total conversion ready 2 weeks (rather than 1 week) before installation.

We submitted 8 PSR errors to CDC for correction on KRONOS Level 11. One of the reasons for the March 22 changeover was that CDC would accept KRONOS 2.1 PSR's only through March 31, 1976.

messages*--by K.C. Matthews*

The messages printed in the dayfile at the end of a job look different under Level 11 than they did under Level 9. Here is a summary of what the current messages mean with a sample of what the end of job messages may be:

UEPF	0.064 KUNS
UEMS	28.213 KUNS
UEMT	1.010 KUNS
UECP	50.982 SECS
AESR	65.582 UNTS
UCLP,34,	0.011 KUNS,BC

- UEPF = number of permanent file catalog accesses. In general, an access to the permanent file adds from 1 to 20 to the PF access accumulator. This counter is not used for accounting at UCC.
- UEMS = units of mass storage transferred. The unit of mass storage transfer is 1/4 of a PRU. Thus, when a job transfers 1000 PRU's, it transfers 4.000 KUNS (kilo units) of the new UEMS units. The cost to the user remains the same. In the sample message above, 28.213 KUNS ÷ 4 = 7.053 kilo PRU's of mass storage transfer.
- UEMT = units of magnetic tape transferred. This unit is 1/4 of a normal magnetic tape PRU. That is, 1 PRU read adds 4 to the UEMT counter. As in the UEMS counter, the cost to the user remains the same. (some things count as only

one MT unit, for example, the opening of a magnetic tape file.) In the sample message, 1.010 KUNS ÷ 4 = .252 kilo PRU's of magnetic tape transfer.

UECP = CP time in seconds.

In the sample message, 50.982 seconds of CPU time were used.

AESR = number of system resource units (SRU's) accumulated. A SRU is a combination of the CP, MS, PF, and MT accumulators specified. The SRU is not used for accounting at UCC; however, the ratio of the SRU total to some of the other totals may provide useful information about how the system works. We will try to furnish some guidelines on interpreting AESR in a future newsletter.

UCLP = number of pages printed.

In the above example, 0.011 KUNS (kilo units) means 11 pages printed.

Punched output*--by M.J. Frisch*

The recent change to KRONOS 2.1.2 (Level 11) gives users a standard method of producing punched cards in IBM 029 format rather than the default IBM 026 format. To punch cards in 029 format, use the DISPOSE control card with file type P9. For example

```
DISPOSE(PUNCH=P9/S=EA)
```

will punch the file PUNCH in 029 format and request that the cards be returned to Experimental Engineering (site EA).

Since this new standard method is now available, the program DIS2029 (that had been recently written to solve this problem) will be removed from the KRONOS system on April 19, 1976.

FTN*--by M. Riviere*

The permanent file FORTRAN routines that are included in the current FTN 4 library, FORTRAN, have been modified. A new parameter is available that provides the option of "no aborting" the program in the event of a permanent file command error. Documentation for these routines is available via the control card WRITEUP,CALLPFM (see page for information on obtaining WRITEUP documents).

library changes*--by M.J. Frisch*

March, 1976: NUMBER corrected to work properly. BETA1 added to file FORTRAN, a new version, correcting error at extreme values of parameters.

KCL

--by K.C. Matthews

Level 11 of the KRONOS operating system brings with it some new KRONOS Control Language (KCL) features. This article summarizes these changes in effect at UCC.

(1) Date and Time

The symbols PD and PT are the current packed date and time. For example, the packed date for 15APRIL1976 is the 6-digit octal number: 06 04 17B. The 06 indicates 6 years from 1970, the 04 indicates month 04 (April), and the 17B indicates the day of the month (17B = 15D). Note that (PD.AND.77B) will give the day of the current month.

The symbol DW is the current day of the week; DW=0 is Monday, DW=1 is Tuesday, etc. This lets you find out if it is a weekend with a statement like: IF(DW.LE.4)GOTO,1WEEK.

(2) The GOF0 statement acts like the GOTO statement except that it always goes forward from the current statement whereas the GOTO statement goes to the first occurrence of the statement in the control card stream. For example, in a procedure one could include the statements:

```
GET,FILE1/NA.
IF(.NOT.FILE(FILE1,AS))GOF0,GET.
:
:
GET,FILE1=FILE2/NA.
```

The GOF0 in this case would proceed to the second GET statement, not the first. GOF0 is particularly useful in procedure files which are called more than once in a control statement stream. Since the statements in a procedure file are actually inserted twice into the control card stream if the procedure is called twice, using GOF0 is essential if transfer of control is required in these procedures.

This feature was adopted from the Wrubel Computing Center, Indiana University.

(3) The ID function

The ID function compares two file names and returns a TRUE result if the names are the same and a FALSE result if they are different. Thus:

```
ID(INPUT,INPUT) is TRUE
ID(INPUT,X) is FALSE
```

ID is most useful in procedure files to test parameter substitutions on the CALL card. For example, one could have a procedure file COMP with the statements:

```
IF(.NOT.ID(IN,INPUT))REWIND(IN)
MNF(I=IN,...)
```

Then, if the procedure is called as

```
CALL(COMP(IN=INPUT))
```

the INPUT file will not be rewound. If COMP is called with

```
CALL(COMP(IN=COMPILE))
```

then the file COMPILE will be rewound before MNF compiles it.

(4) SIZE function

The SIZE function returns the number of PRU's in a mass storage file. For example:

```
IF(SIZE(TAPE1).GT.200)DISPOSE(TAPE1=PR/...
```

This statement will dispose file TAPE1 only if it is greater than 200 sectors long. If the requested file name is not attached to the job, SIZE returns a length of 0. If the file specified is not a mass storage file, SIZE returns a length of -1.

(5) The Z statement

The Z statement acts like a CALL statement but the statements to be executed are taken from the Z card itself. The first character after the Z terminating character, either a period or a close

parenthesis, is taken as a delimiter character. This delimiter character acts to separate statements on the remainder of the card. For example:

```
Z./R,TAPE1./CBR,TAPE1,X,3./COPY,TAPE1,OUTPUT.
```

In this case, the / is the delimiter character. Executing this Z statement is exactly like executing a CALL of a procedure with the statements:

```
R,TAPE1.
CBR,TAPE1,X,3.
COPY,TAPE1,OUTPUT.
```

The Z statement is useful mainly for TELEX users. It can be used in a batch mode job also, however. Remember that since it acts like a CALL, the whole control statement file is recopied, so using many Z cards in a control statement file causes many copies, thus increasing the CP time and mass storage PRU's charged for the job.

The Z statement is called "Z" because it uses the delimiter character on the control card in the same fashion as do the MODIFY and LIBEDIT control statements when they are called with a Z argument.

(6) The symbols TL and FL refer to the job's time limit and RFL field length. These symbols may occur to the left of an equal sign (=); in that case, the time limit and field length for the job may be changed.

```
SET(TL=100B)
```

acts exactly like

```
SETTL(100B).
```

and

```
SET(FL=47300B)
```

acts exactly like

```
RFL(47300).
```

Note that the B suffix is required in the KCL statements since KCL assumes base decimal by default.

The symbol CET refers to the current elapsed CPU time. Hence, if a job has used 5 CPU seconds, the statement

```
SET(TL=CET+3)
```

will set the job's time limit to 5+3 = 8.

One cannot exceed one's validated time limit and field length by using the SET statements for FL and TL.

Specials

--by A.B. Mickel

PASCAL:

On the 6400, a version of PASCAL was activated in March which automatically calculates a reduced field length between compilation and execution (new meaning of the G+ option). This version shows significantly improved response times and is also available on the Cyber 74 via the FUTURE,PASCAL command.

APL:

The University of Massachusetts version of APL, called APLUM, is to be ready for use very soon. The batch command, APLUM,options. will give access to this interpreter on both the Cyber 74 and the 6400. The complete reference for this interpreter, APLUM Reference Manual (Clark Wiedman, University of Massachusetts Press) will be available in the Engineering Bookstore in the near future.

A UCC writeup is in preparation. For more information on APLUM, call Kevin Fjelstad, 238 ExpEng, 373-4181.

LISP:

The new (4.0) version of LISP from the University of Texas has been installed as the FUTURE version on the Cyber 74. Interactive users should use the BATCH command, LISP,Q,Z,C (with a field length of 50000) to enter LISP.

New features include virtual function (program storage on disk and random access of data. Many new functions and special atoms have been added for the convenience of interactive users.

A 3-page conversion document has been prepared and is available via the WRITEUP,LISP control card (for information on obtaining WRITEUP documents, see page 10 of this newsletter).

omnitab

--by S.P. Yen

New Version -- A new version of OMNITAB may be accessed via the FUTURE,OMNITAB control card. Some errors have been corrected in this version and the execution time has been improved; it is about 3/4 of the time required for the current version.

IMP, an OMNITAB mimic -- IMP is an interactive mathematical package developed at the University of Texas and now available on the Cyber 74. It is designed to be as easy to use and as powerful as OMNITAB, and yet to be efficient enough in terms of size and other factors to be competitive in a time-sharing environment. A writeup describing IMP is available in 140 Experimental Engineering, or you may call 373-7744 for a copy.

PTR's

--by B. Stahl

A new list of bugs in the statistics packages is now available. To get a copy of this list, use the control card; WRITEUP, PTRSTAT.

micros

--by T. Jacobson

INTEL Corporation has given the University of Minnesota support software for its microcomputer products. This software is being installed for use on both the MERITSS and MIRJE systems. The file NOTE on both MIRJE or MERITSS will contain some preliminary information on the use of this software. To see the contents of NOTE, use the following:

OLD,NOTE/UN=YZE6112
RNH

on MIRJE, and

OLD,NOTE/UN=UCC6112
RNH

on MERITSS. Please APPEND the file COM with comments or requests concerning this or other microcomputer software during this installation phase.

More comprehensive information will be available soon.

video

--by L. Fletcher

UCC has produced two instructional video tapes: (1) the operation of the Univac 1004 terminal, and (2) the operation of the keypunch; both are available for viewing in the Walter Library Learning Resources Center and in the Coffey Hall Instructional Resources Center.

We have also received requests for copies of these tapes. In response, we have established the following charges:

COST OF TAPES:

	KAREX	SONY	SCOTCH, MEMOREX, 3M
60 min 3/4 in cassette	\$20.50	\$28.00	\$25.19
30 min 3/4 in cassette	13.75	22.00	17.88
60 min 1/2 in reel-to-reel	14.68	23.00	19.19
30 min 1/2 in reel-to-reel	8.16	17.00	11.33

COST OF REPRODUCTION:

\$5.00 per hour (\$5.00 minimum)

COST OF POSTAGE:

\$1.50 (within U.S.A.)
\$2.50 (Canada and Mexico)
\$5.00 (all other countries)

These prices are subject to change without notice; we will publish any changes in the newsletter.

The keypunch tape is now a little over 30 minutes long; it will be expanded to about 55 minutes when we add the section on programmed punching and verifying.

The 1004 tape is under 30 minutes now but we will expand it to about 45 minutes on future editions.

Send us a letter specifying the copy you want. With your request, enclose a remittance payable to the "University of Minnesota" for the appropriate costs. Unless you specify otherwise, your copy will be on KAREX SILVERCROME II; you may have a different brand of tape by specifying this in your request. Your copy will be sent by first class mail.

Send all requests to:

University Computer Center
227 Experimental Engineering
University of Minnesota
Minneapolis, Mn 55455
ATTENTION: Lincoln Fletcher

support

--by H. Kurs

A list of the FUTURE, current, and PAST versions of the COBOL compiler and the SORT/MERGE processor, as well as FUTURE and current versions of Record Manager and specific utility products is presented here. By specifying the following control cards, a user may access the desired version of these products:

- FUTURE(name) Provides the latest version.
name.
- name. Provides the current version.
- PAST(name) Provides the older version.
name.
- FETCH(name) Provides the current version of the library specified by "name" or may provide a special version of the product.

The products and libraries available are:

- BBT06RM Blocked binary conversion routine.
- CB4LIB COBOL library routines.
- COBOL COBOL compiler.
- COPY8P 8-bit subroutine utility to copy IBM to CDC print files.
- COPYCL Utility to create a COBOL source library.
- ESTMATE Record Manager utility routine for index sequential files.
- IXGEN Record Manager utility routine for multiple index files.
- RANCONV Random file conversion routine.
- SISTAT Record Manager statistical utility routine for index sequential files.
- SMTEXT SORT/MERGE text for SORT/MERGE COMPASS programs.
- SORTMRG SORT/MERGE processor.
- SYSIO Record Manager library routines.
- SYSMISC Version 3.0 COBOL library for old binary SORT/MERGE programs.

If no user access is made to obtain SYSIO, the system automatically provides V4.5, Level 11: PSR410. The system also makes available the FILE control card processor. FETCH products, CB4LIB, SYSIO, and SYSMISC, or the FUTURE versions of CB4LIB and SYSIO, need only be used when binary programs are to be executed. FETCH product, SMTEXT, is the current version of the SORT/MERGE text. When the COBOL compiler is accessed, the COBOL library (CB4LIB), Record Manager (SYSIO), and the COPYCL utility (COPYCL) are automatically provided. Utility products BBT06RM, ESTMATE, SISTAT, RANCONV, IXGEN, COPYCL, and COPY8P need to be individually accessed.

Version 3 products, with the exception of SORT/MERGE, will remain as PAST products until final removal from the system. SORT/MERGE Version 3 will remain available as SORTMR3 until its final removal from the system. Final removal of these Version 3 products will occur when their usage ceases. There will be no further maintenance or modification by UCC of these Version 3 products.

Documentation for these products can be found in the following manuals and writeups:

- (1) BBT06RM & RANCONV: V3 to V4 Data File Conversion Guide (UCC, 1975)
- (2) COBOL, CB4LIB, & COPYCL: COBOL V4 Reference Manual (CDC#60384100) and COBOL 3 to COBOL 4 Conversion Guide (UCC, 1975)
- (3) ESTMATE, IXGEN, SISTAT, & SYSIO: Record Manager User's Guides (CDC#60359600, CDC#60385200, CDC#60385300)
- (4) SORTMRG, SMTEXT, & SYSMISC: SORT/MERGE V4 and V1 Reference Manual (CDC#60343900); SORT/MERGE 3.0 to SORT/MERGE 4.0 Conversion Guide (UCC, 1975)
- (5) COPY8P: 8-bit Subroutines Version 1 Reference Manual (CDC#60359400).

The following table describes the level of the products to be accessed when using FUTURE, 'name', PAST, or FETCH:

Product	FUTURE	current	PAST	FETCH
BBT06RM	NA	BBT06RM	NA	NA
CB4LIB	V4.5, Level 11: PSR410	NA	NA	V4.4, Level 10: PSR401
COBOL	V4.5, Level 11: PSR410	V4.4, Level 10: PSR401	V3	V3
COPYCL	V4.5, Level 11: PSR410	V4.4, Level 10: PSR401	V3	V3
COPY8P	V4.5, Level 11: PSR410	V4.4, Level 10: PSR401	NA	NA
ESTMATE	V4.5, Level 11: PSR410	V4.4, Level 10: PSR401	V3	V3
IXGEN	V4.5, Level 11: PSR410	V4.4, Level 10: PSR401	NA	NA
RANCONV	NA	RANCONV	NA	NA
SISTAT	V4.5, Level 11: PSR410	V4.4, Level 10: PSR401	V3	V3
SMTEXT	V4.5, Level 11: PSR410	NA	V3	V4.4, Level 10: PSR401
SORTMRG	V4.5, Level 11: PSR410	V4.4, Level 10: PSR401	NA	NA
SYSIO	V4.5, Level 11: PSR410	NA	NA	V4.4, Level 10: PSR401
SYSMISC	NA	NA	NA	V3

*NOTE: 'NA' means not applicable.

DATA FILE CONVERSION:

Data files created by V3 products must be converted before they can be accessed by V4 products (V4 products use Record Manager). Two utility routines, BBT06RM and RANCONV, exist to help convert data files easily.

BBT06RM: this routine converts FORTRAN created V3 binary blocked data files into V4 binary data files that use Record Manager. This is necessary because Record Manager does not support V3 FORTRAN binary blocked files. BBT06RM is called by a control card and, by default, produces a sequential binary file with W-type records (control word records) and C-type blocks (character count blocks). The user has the option of producing I-type blocks (internal blocking

type); I-type blocks are the standard Record Manager default blocking type and are recommended.

RANCONV: this routine converts single-level, name/number indexed, V3 random data files (created by READMS and WRITMS) into indexed word-addressable data files for V4 processing. Sub-indexed data files cannot be converted by RANCONV. RANCONV is called by a control card and produces a data file having word-addressable file organization (F0=WA) and undefined record type records (RT=U).

For detailed information, see the UCC publication "KRONOS 2.1 V3 to V4 Data File Conversion Guide," dated September, 1975. Pick up a copy in the UCC Reference Room, 235a Experimental Engineering, or call 373-7744.

SPSS

--by S.P. Yen

A FTN 4.5 (OPT=1) version of SPSS 6.0 may be accessed via the FUTURE,SPSS control card. Because of Record Manager, a minimum CM63000 is required. The NONLINEAR REGRESSION and DISCRIMINANT ANALYSIS users should use this version instead of the current one.

These errors listed below have been found in the second edition of the SPSS manual; they will be corrected in future printings:

 SPSS Manual, Edition 2
 ERRATA

P = paragraph; S = sentence; L = line; pg = page

- pg41; P3; S2,3 Replace S2 and S3 with 'In this instance, the user must omit the N of CASES card. If the user inserts an N of CASES card and a SUBFILE LIST card, an error will occur and processing will terminate.'
- pg141; P4; L9 Change 'can' to 'must'
- pg141; P4 Insert new paragraph follow P4: 'A-type specifications may request no more than 8 columns.'
- pg156; P2; L5,6 Replace L5 and L6 with 'names must be entered on the MERGE FILES card in the sequence in which they reside on the input file. This will determine their order both on the active file (used by the SPSS system)'
- pg171;
shaded example Replace GET ARCHIVE card with:
'GET ARCHIVE FILE = RAWQUEX VARIABLES= ATT1 to ATT350/'
- pg179; fig 13.1 Change 'Version 5.01' to 'Version 6.00'
- Replace SUBFILE LIST card with:
'SUBFILE LIST NEWYORK(100) NJJERSEY(115) PENNSYLV(135)'
- Delete N of CASES card.
- pg185; Kurtosis Move square bracket which is at right of $6x^{-2}$ term to right of $4x^{-3}$ term.
computing formula
- pg197; general Remove slashes following value range specifications.
format
- pg262; limitations Change limitation numbers 3,4,5 to numbers 4,5,6.
 Insert:
'LIMITATION 3 The maximum number of tables which can be requested in the TABLES = list is 100.'
- pg325; footnote Insert square root sign around unbiased estimate formula:
$$\sqrt{[\sum Y - Y']^2 / (N - 2)}$$
- pg344; general Change 'odd' to 'even'
format
- pg356;
Limitation 3 Add as first sentence: 'A maximum of 100 variables is allowed on any VARIABLES list.'
- pg410; Table 22.9 Change '66' in Male row to '6'
- pg522; Sec 25.5, Change 'of canonical' to 'of standardized canonical'
P3, L1
- pg522; Sec 25.5, S4 which reads 'Each coefficient represents...canonical variate.', should be deleted.
P3, S4
- pg541; Table A.1 Current precedence numbers 13 through 26 should be changed to 14 through 27. WEIGHT, now listed as precedence number 9, should be given precedence number 13.
- pg576; P2 Change item number 4 to item number 5. Insert:
'4 The core storage space required to process data transformations in the maxiversion is 1.64 times that required in the standard version. Thus for the maxiversion the required TRANSPLACE is the maximum of $NTRANS*164$, $NVALS*41$, and $NOPERS*20.5$ (see Sec. 8.7.1).'

summaries

PRODUCTION USAGE SUMMARIES

CDC Cyber 74

	February, 1976	February, 1975
Number of jobs run	75,702	59,477
Central processor hours	120	99
Mass storage transfers (KPR)	141,078	-
Magnetic tape transfers (KPR)	4,318	-
Pages printed	771,346	759,188
Cards punched	546,267	460,484
Microfilm frames produced	35,071	28,633
Tapes mounted	7,433	6,252
Average file storage	646.7 million characters	417.0 million characters
Mean time between failures	14.6 hours	-
Percentage available during scheduled hours	97.1 percent	-

CDC 6400

Number of jobs run	206,714	285,682
Central processor hours	94	101
Terminal hours	24,273	32,505
Number of terminal sessions	50,155	71,745
Maximum number of simultaneous users	126	187
Average file storage	183.1 million characters	174.9 million characters
Mean time between failures	38.4 hours	26.0 hours
Percentage available during scheduled hours	98.0 percent	98.2 percent

CYBER 74 DOWNTIME SUMMARY -- February 26 - March 28, 1976

	Monday-Friday 0800 - 1600	other	total
Total possible scheduled uptime hours	220	330	550
Total downtime hours (see schedule A)	14.0	5.1	19.1
Total uptime hours	206.0	324.9	530.9
Uptime percentage	93.6 percent	98.5 percent	96.5 percent
Average downtime per occurrence	30 minutes	38 minutes	31.8 minutes
Mean time between failures	9.8 hours	46.4 hours	19 hours
Subsystem failures			
SUPIO	18	6	24
TELEX	2	1	3
EXPORT	12	7	19

Schedule A: downtime hours

	Number of occurrences	total hours down	average minutes downtime
1) Preventive maintenance over-runs	3	1.4	28.3
2) Software related problems	15	5.3	21.3
3) Hardware related problems	6	9.8	98.3
4) Indeterminate software/hardware problems	11	.9	4.6
5) External problems (power failure)	1	1.7	99.0

SUBMISSION SITE USAGE SUMMARY -- TELEX excluded -- March, 1976

submitted from	total jobs	% of jobs	pages printed	% of pages	cards read	% of cards
Lauderdale	5,643	8.0	338,980	27.6	2,247,124	16.4
ExpEng I/O	11,102	15.8	267,204	21.8	3,505,648	25.6
West Bank	8,332	11.9	147,016	12.0	1,620,225	11.8
6400	855	1.2	-	-	-	-
SUPIO	44,220	63.0	472,994	38.6	6,306,108	46.1
TOTALS	70,152		1,226,194		13,679,105	

documentation

In 1970, UCC published a document called the "UCC Computer User's Manual" which attempted to be a complete reference document for UCC's services and equipment. This document had a number of deficiencies; it never adequately described the available software, it was never brought up to date at reasonable intervals, and it was never indexed for easy reference.

Late in 1973, after a period of rapid change in both equipment and software, UCC began a project to provide an up-to-date user's manual. Because of the many changes, we decided to write a new manual rather than update the old one. The original project called for a user's manual in two parts: Part 1 to contain descriptions of equipment and services; Part 2 to contain descriptions of the operating system, software, libraries, and programming aids. Part 1 was first published in early 1974 but Part 2 lagged far behind. The primary reason for this delay was that the proposed manual contained no educational material and was not directed at the beginning computer user.

Late in 1974, the whole problem was re-examined. A comprehensive outline for a user's manual (25 chapters, many appendices) was produced and Part 1 was transformed into "The Compleat Guide for the Neophyte." This new proposal envisioned a user's manual containing both educational and reference material. We hoped to produce a manual which would introduce the user to computing concepts and describe the software and hardware in a logical manner; one that would not assume prior knowledge of the part of the reader. We wanted to explain the file-based concepts of the KRONOS operating system (the CDC manuals do not do this well) and we wanted to explain all the KRONOS commands and give examples of their use.

1975 saw the production of only 6 of the proposed 25 chapters; a reasonable projection showed a 1978 completion date and a manual 6 inches thick and unreasonably expensive. Rather unhappily, we decided to take another look at our documentation efforts. We were surprised. Working somewhat haphazardly, we had already furnished some of the necessary information that the user's manual was designed to supply.

UCC NEWSLETTER (This monthly free publication gives information on recent changes in hardware, software, and services, has regular columns on library changes, gives operating hours, terminal sites, available documentation, etc.)

FOR THE NEW USER: A COMPLETE GUIDE TO UCC SERVICES (This re-write of "The Compleat Guide for the Neophyte" is designed to introduce new user's to UCC's facilities and services; it is also free.)

A POCKET GUIDE TO THE UNIVERSITY COMPUTER CENTER (This is a quick reference; it serves as a "memory aid" for the more experienced user; also free.)

UNIVAC 1004 USER'S GUIDE (A preliminary version of this is now available; a final version will be completed spring quarter 1976; free.)

A GUIDE TO THE HYBRID COMPUTER LABORATORY (HCL) already produces a very fine introductory guide to services; it will be adapted in future to fit into our proposed unified documentation scheme; free.)

STUDENT GUIDE TO BATCH COMPUTING (This short guide introduces student programmers to UCC services; it details the procedures for setting up batch jobs and is designed to supplement classroom materials; also free.)

BEGINNER'S GUIDE TO THE TIMESHARING COMPUTER SYSTEMS AT THE UNIVERSITY OF MINNESOTA (This brief guide with the long name describes the different time-sharing systems, gives a short description of log-in procedures, and points the reader to further documentation.)

INSTRUCTOR'S GUIDE TO BATCH COMPUTING (This is a short introduction, designed to assist classroom instructors who wish to have their students use the Cyber 74 computer system; this guide is free.)

All these publications are brief, free, and serve a specific need. In addition to these basic publications, we also produce writeups, conversion guides, and WRITEUP documents; the monthly newsletter lists the current status of all publications, including the WRITEUP documents. Of particular note are the WRITEUP document on tapes (TAPEUSE), permanent files (PFGUIDE), and the new writeup record documenting all the KRONOS commands (CONTROL).

After reviewing these publications, we decided to AGAIN revise our plans for a "user's manual." Rather than producing one big manual, we will write a series of guides, and a short "user's manual" to serve as a unifying document; the user can then pick and choose those he wishes to obtain. We propose publishing the following:

USER'S MANUAL: This will be a short basic manual to introduce computer terms, describe UCC's facilities, describe the organization and manipulation of data, describe how jobs move through the system, demonstrate how to run jobs, and explain UCC's operations policies. This manual will be looseleaf and will index itself and all the other major UCC guides.

USER SOFTWARE GUIDES: We plan to produce software guides describing specific user areas, for example, program editing, data base management systems, plotting software. We propose very descriptive guides with pointers (where necessary) to other commercial or UCC publications. In addition to the software guides, we will continue to publish writeups describing specific packages, for example, OMNITAB, SPSS, SYSTEM 2000.

KRONOS PROGRAMMING GUIDES: We plan to produce guides for all aspects of the operating system; we want these guides to be much more explicit and descriptive than is the CDC KRONOS 2.1 Reference Manual. We already have two of these guides ready: WRITEUP TAPEUSE will become the "Guide to Tape Usage" and WRITEUP,PFGUIDE will become (with some revisions) the "Guide to Permanent File Usage."

The "user's manual" is almost ready (remember those 6 chapters?); it needs some review; the other guides will be coming out at irregular intervals. We will announce publication in this newsletter.

We feel that this proposal is realistic. It permits each user to decide which areas apply to his needs and lets him choose the documentation he needs.

Suggestions and comments should be directed to:

Publications Group
University Computer Center
227 Experimental Engineering

or call the Publications Manager, 373-7744.

CLASSES

The following short courses will be offered Spring quarter. No registration is required and no credit is given. We suggest that you do some preliminary reading before attending the courses.

INTRODUCTION TO THE COMPUTER CENTER

A general introduction to the computer center; equipment, terminal locations, account numbers, job submission, keypunch, tape purchase, necessary forms; how to use the center.

DAYS : Wednesday, March 31
 HOURS : 2:15 - 4:00 PM
 ROOM : MechE 221
 INSTRUCTOR: R. Franta
 REFERENCES: from instructor

BEGINNING FORTRAN

A presentation of the basic features of the FORTRAN language. FORTRAN was the first language to be used widely for numeric computations and is used in many other computational areas. We teach a version of FORTRAN IV.

DAYS : April 5,7,9,12,14,16,19,21,23 (MWF)
 HOURS : 2:15 - 4:00 PM
 ROOM : Aero 21
 INSTRUCTOR: R. Franta
 REFERENCES: MNF Reference Manual

COBOL

An introduction to the COBOL language. COBOL is an English-like language suitable for business data processing problems. Areas covered are mass storage, program libraries, and other facilities.

DAYS : April 5,7,9,12,14,16,19,21,23 (MWF)
 HOURS : 2:15 - 4:00 PM
 ROOM : Aero 313
 INSTRUCTOR: J. Cosgrove
 REFERENCES: COBOL Version 4 Reference Manual (CDC#60384100E)

PASCAL

This is a modern general purpose programming language designed as a data structuring successor to Algol-60 and intended as a convenient basis to teach programming as well as an efficient tool for writing programs.

DAYS : April 26,28,30, May 3,5,7,10,12,14 (MWF)
 HOURS : 1:15 - 3:00 PM
 ROOM : Arch 5
 INSTRUCTOR: A. Mickel
 REFERENCES: PASCAL, User Manual & Report (Jensen & Wirth, 1974)

LISP

LISP 1.5 is a programming language based on Church's lambda calculus featuring list structures and list processing.

DAYS : April 26,28,30, May 3,5,7 (MWF)
 HOURS : 3:15 - 5:00 PM
 ROOM : Aero 319
 INSTRUCTOR: A. Mickel
 REFERENCES: The Little LISPer (Friedman, 1974)

KEYPUNCH

A video tape, covering the use of the keypunch, has been prepared and made available by UCC; see page 9 of this newsletter for information.

KRONOS CONTROL CARDS

An introduction to the KRONOS operating system and descriptions of the available control statements.

DAYS : April 6,8,13,15,20,22,27,
 29, May 4,6 (TTh)
 HOURS : 2:15 - 4:00 PM
 ROOM : Aero 21
 INSTRUCTOR: R. Franta
 REFERENCES: KRONOS 2.1 Reference Manual, Vol. 1 (CDC#60407000D)

SPSS

This course introduces and explains the uses and methods of SPSS (Statistical Package for the Social Sciences) and how the system works at UCC.

DAYS : May 12 & 14 (W,F)
 HOURS : 2:15 - 4:00 PM
 ROOM : Aero 317
 INSTRUCTOR: D. Anderson
 REFERENCES: SPSS Edition 2 (Nie, et alia, 1975)
 SPSS Version 6.0 (UCC, 1975)

INTRODUCTION TO SYSTEM 2000

A beginning level of System 2000; teaching how to use a generalized data base management system.

DAYS : April 6,8,13,15,20,22 (TTh)
 HOURS : 2:15 - 4:00 PM
 ROOM : Aero 313
 INSTRUCTOR: J. Cosgrove
 REFERENCES: System 2000 Reference Manual (MRI, 1975)

SYSTEM 2000 PROGRAMMING LANGUAGE INTERFACE

This course covers the FORTRAN/COBOL programming language interface portions of System 2000.

DAYS : May 10,12,14 (MWF)
 HOURS : 2:15 - 4:00 PM
 ROOM : ChemE 40
 INSTRUCTOR: J. Cosgrove
 REFERENCES: System 2000 Reference Manual (MRI, 1975)

ADVANCED SYSTEM 2000

This course covers the advanced features of System 2000.

DAYS : May 24,26,28 (MWF)
 HOURS : 2:15 - 4:00 PM
 ROOM : ChemE 40
 INSTRUCTOR: S. Nachtsheim
 REFERENCES: System 2000 Reference Manual (MRI, 1975)

SYSTEM 2000 REPORT WRITER

This course teaches the student how to use the Report Writer feature of System 2000.

DAYS : May 17,19,21 (MWF)
 HOURS : 2:15 - 4:00 PM
 ROOM : ChemE 40
 INSTRUCTOR: S. Nachtsheim
 REFERENCES: System 2000 Reference Manual (MRI, 1975)

GRAPHICS

This course describes the graphics packages available at UCC.

DAYS : April 27,28,29 (T,W,Th)
 HOURS : 7:30 - 9:30 PM
 ROOM : Lauderdale conference room
 INSTRUCTOR: M. Frisch
 Plotting equipment will be 'hands-on' Site and time are chosen to permit rapid turnaround for student's plots.

Reference Manuals

CDC ALGOL Version 3 (60322900D)
 CDC APL*CYBER (19980400C)
 CDC BASIC 2.1 (19980300C)
 BMD Computer Programs Reference Manual (1973)
 CDC COBOL Version 4 (60384100E)
 CDC COMPASS Version 3 (60360900E)
 CDC FTN Version 4 (60305600G or 60305601H)
 CDC FTN DEBUG User's Guide (60329400B)
 IMSL Library Catalog (Library 3, Edition 4)
 CDC KRONOS 2.1, Volume 1 (60407000D)
 MNF Reference Manual (1974)
 CDC MODIFY (60281700F)
 OMNITAB II Programmer's Reference
 CDC PERT/TIME (60133600D)
 CDC Record Manager User's Guide (60359600C)
 CDC SIMSCRIPT (60358500E)
 CDC SIMULA Version 1 (60234800E)
 CDC SORT/MERGE Version 4 (60343900H)
 SPSS Edition 2 (1975)
 SPSS 6000/Version 6.0 (1975)
 System 2000 Reference Manual (1975)
 +System 2000 User's Guide
 CDC Text Editor (EDIT) (60408200C)
 CDC Timesharing User's RM (60407600D)
 ++UMST Reference Manual (1971)
 CDC UPDATE (60342500F)
 CDC 8-bit Subroutines RM (60359400C)
 †being revised
 ††out of print--will not be reprinted

Reference copies of these manuals can be found in the user rooms and at the remote terminal sites; manuals are either stocked at or may be ordered from the Engineering Bookstore. For prices, see the WRITEUP record, DOCLIST.

UCC free publications

Beginner's Guide to Timesharing
 Compleat Guide for the Neophyte
 Index to Cyber 74 User Software
 Instructor's Guide to Batch
 Pocket Guide to UCC Facilities
 System 2000 User Aids (#'s 1,2,3,4)
 Student Guide to Batch
 MINN Subprogram writeups (see "Index to Cyber 74 User Software" for a complete list)
 ISIS User's Manual
 XEDIT 2.0
 Univac 1004 Operating Instructions

Copies of these free publications can be obtained from 140 ExpEng, 235a ExpEng, or you may call 373-7744 and ask for copies.

Other useful references

The Little LISPer (Friedman)
 LISP 1.5 Programmer's Manual (McCarthy, et al.)
 PASCAL User Manual and Report (Jensen & Wirth)
 The SNOBOL4 Programming Language (Griswold, et al.)
 A SNOBOL4 Primer (Griswold & Griswold)
 SIMULA: Begin (Bertwistle, et al.)
 MIX (Knuth)
 RPG Language Specifications (IBM pub. # GC24-337-5)
 GPSS Primer (Greenberg)
 GPSS V User's Manual (IBM pub. # SH20-0851-1)
 SPSS Primer
 Introduction to ALGOL Programming

You will find these in the University libraries and bookstores.

WRITEUP records

ABCLIST Extended CATLIST utility (1 page)
 AMEND Unit record manager (4 pages)
 ARCHIVE Latest listing of archived files.
 BLANK Initial label writing (2 pages)
 → BLOCKER Write blocked stranger tapes (3 pages)
 → CALLPFM FORTRAN 4 P.F. routines (7 pages)
 → CALLPRG Library search extension (7 pages)
 CATALOG Catalog file (2 pages)
 CATLIST Catalog permanent file (3 pages)
 CATLSYS Extended CATLIST utility (1 page)
 CCINDEX Index to UCC documentation (6 pages)
 CIMSPLI CIMS PL/I user guide (34 pages)
 CHANGER Extended change utility (1 page)
 → CONSULT Consulting sites and hours (1 page)
 CONTROL Control card processor (9 pages)
 COPYU Copy unit record (6 pages)
 COST Calculate job cost (1 page)
 DISPOSE DISPOSE control card (9 pages)
 → DIS2029 Translate display code to 029 (1 page)
 DMPCOR Central memory dump routine (1 page)
 DMPECS Dump extended core storage (1 page)
 DOCLIST Documentation list (3 pages)
 DRESS Prepare source file for MODIFY/UPDATE (13 pages)
 DUMPPF P.F. dump/load utility (7 pages)
 ERRMESS Dayfile error messages (15 pages)
 → EXAMINE Magnetic tape content determinator (4 pages)
 FILES Local file manipulator (4 pages)
 GETSAVE P.F. transfer utility (1 page)
 ISIS Statistics instructional system (45 pages)
 LIBEDIT Library editing program (3 pages)
 MODIFY Source library editing program (11 pages)
 NOTE T/S system notes (cumulative)
 PACKMS Pack random file (1 page)
 PASCAL PASCAL information file (26 pages)
 PFGUIDE Permanent file user's guide (60 pages)
 PFILES Permanent file request processor (7 pages)
 PREVIEW Preview display dump (1 page)
 PTRFORT FORTRAN program trouble reports (cumulative)
 PTRKR KRONOS PTR's (cumulative)
 PTRMISC Miscellaneous PTR's (cumulative)
 PTRS2K System 2000 PTR's (cumulative)
 PURGER Extended purge utility (1 page)
 REBLOCK Convert S and L tapes to internal (6 pages)
 REFORM Sequence/desequence T/S source programs (1 page)
 RJDSTAT Daily SUP10 statistics (daily)
 RJECOM Remote job entry commands (4 pages)
 → RJEMTOT Monthly SUP10 statistics (monthly)
 RJMSTAT Daily SUP10 statistics (cumulative)
 SITEBIN Shelf locations for output distribution (2 pages)
 SNOINFO CAL 6000 SNOBOL (24 pages)
 SNPSHOT Write/restore registers and dump memory (5 pages)
 STRATEN Straighten COMPASS source (4 pages)
 SYSMODS Latest system changes (daily)
 SYSNOTE Cumulative system notes (cumulative)
 → TAPEUSE Tape user's guide (70 pages)
 TDUMP File dump (1 page)
 TESTCR Card reader testing routine (1 page)
 TESTLP Printer and line test program (2 pages)
 TIDY Tidy FORTRAN source program (7 pages)
 TSTATS Tape mounting statistics (daily)
 TYPESET Text reform program (12 pages)
 UNPAGE Edit carriage control characters (6 pages)
 XEDIT Extended interactive text editor (14 pages)
 1004INS 1004 operating instructions (3 pages)
 1004SET 1004 character set conversion (4 pages)
 → new writeup or recent revision

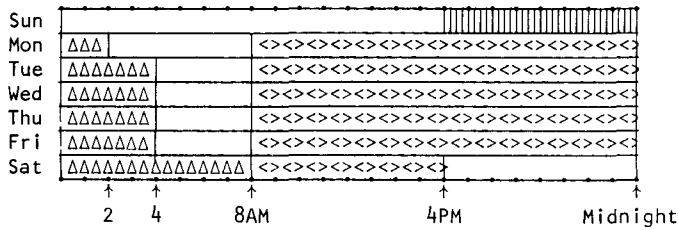
Get copies of these writeups by using a deck like this:

```
Jobcard with T1 and CM10000
ACCOUNT card
WRITEUP,name.
O (6-7-8-9 card)
```

where 'name' is one of the names listed. MIRJE users should enter the command

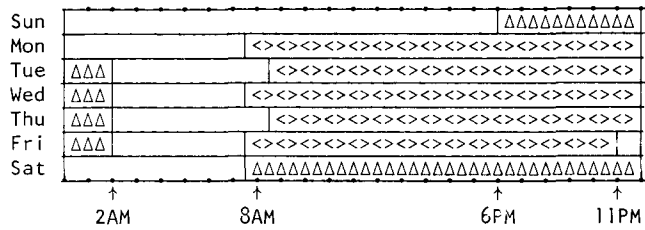
```
X,WRITEUP,NAME.
```

CYBER 74 OPERATING HOURS*



ΔΔΔΔΔ Lauderdale only
 ||||| Lauderdale, ExpEng
 <><>< Lauderdale, ExpEng, West Bank

CDC 6400 (MERITSS) OPERATING HOURS



<><>< up, attended
 ΔΔΔΔΔ up, not attended

* These are machine hours. UCC operators stop accepting jobs about 15 minutes before operations end to enable the queues to clear on time.

SUPIO (RJE medium speed terminals) comes up 1/2 hour after operation begins and closes down 1/2 hour before operation ends.

TELEX (MIRJE terminals): the Cyber 74 operator will issue a 10 minute warning before TELEX is dropped.

UofM-TWIN CITIES INSTRUCTIONAL TIMESHARING LABS

site	supervisor
<u>East Bank</u>	
CentH Computer Room	R. Richgarn 373-2289
Elth 121 & 124	D. Anderson 373-5456
ExpEng 140	T. Hodge 373-4599
HealthSciA 1-752	L. Ellis 373-0331
Lindh 136A	G. Schneider 373-7582
MechE 308	A. Erdman 373-2977
TerrH Computer Room	R. Baker 373-3567
Vincent H 4	W. Stenberg 373-2586
WaLib 204	R. Estelle 373-5195
<u>West Bank</u>	
MdbhH Computer Room	P. Johnston 376-6561
SocSci 167	J. Shea 373-3608
<u>St. Paul</u>	
ClaOff 125	S. Weisberg 373-1068

UofM-TWIN CITIES RJE SITES

site	ID	supervisor(s)
<u>East Bank</u>		
ElectE 38	4V	J. Guentzel 373-5404 M. Cook 373-3985
Elth N640	4W	J. DeWitt 376-7377 D. Anderson 373-5456
ExpEng 130	4B	Shift supervisor 373-4596
KoltH S191	4Z	G. Jensen/373-5754
MasonH M39	4C	L. Croatt 373-7714
MinMet 321	41	C. Swanson 373-5475 R. Brown 373-2308
Physics 69	44	R. Scarlett 373-0243 D. Olson 376-7175 R. Hendrickson 373-3361
SpaSci 134	43	R. Weinberg 373-7881
TerrH W106	41	R. Baker 373-3567
<u>West Bank</u>		
SocSci 167	4X	J. Shea 373-3608
<u>St. Paul</u>		
BioSci 257	47	R. Comstock 373-0979
ClaOff 125G	48	C. Bingham 373-0988 S. Weisberg 373-1068 Consultant 373-0829 Consultant 376-3846
CofH 415	21	D. Nelson 376-7003 T. Ehlen 376-7003
NorH 24	40	J. Colten 373-0990
<u>Lauderdale</u>		
User's Room	49	Shift Coordinator 373-4940

TELEPHONE NUMBERS

- 373-4548 Account Clerk
- 373-4360 Administrative Offices
- 376-3963 Educational Services (R. Franta)
- 373-4596 ExpEng I/O Station
- 376-7067 Field Engineering
- 373-2521 Keypunch Supervisor
- 373-4940 Lauderdale Shift Coordinator
- 373-4995 Microfilm Operator
- 373-5907 Program Librarian (M. Frisch)
- 373-4994 Recorded message: ExpEng I/O jobs
- 373-1798 Recorded message: MERITSS status
- 373-7744 Reference Library
- 376-3963 RJE Services (R. Franta)
- 373-9751 Secretary - Hybrid Lab
- 373-4912 Secretary - Lauderdale
- 373-4995 Tape Librarian
- 376-5592 Telephone consulting: Cyber 74
- 373-5753 Telephone consulting: MERITSS
- 373-4599 User Services (T. Hodge)
- 373-4921 User's Room (Lauderdale)
- 373-3608 West Bank Computer Center

CONSULTING SITES

General Consulting:	Statistics packages:
User's Room (Lauderdale)	ExpEng 140 (East Bank)
ElectE 38 (East Bank)	SocSci 167 (West Bank)
ExpEng 140 (East Bank)	ClaOff 125 (St. Paul)
KoltH S191 (East Bank)	
MinMet 321 (East Bank)	
Physics 69 (East Bank)	
BlegH 25 (West Bank)	

KEYPUNCH SITES

East Bank	West Bank	St. Paul	Lauderdale
ElectE 38(1)	BlegH 86(11)	ClaOff 125(1)	User's Room
Elth N640(2)	BlegH 90(1)	CofH 415(1)	(5)*†
ExpEng 130(2)	SocSci 167(2)*	NorH 24(2)	
ExpEng 131(1)			
ExpEng 208(14)*†			
KoltH S191(1)			
MinMet 321(2)			
Physics 69(1)			
TerrH W106(1)			

†includes 029 keypunch
 *includes interpreting card punch