



**KRONOS**

--by A. Mickel & K. Matthews

The University Computer Center will install KRONOS 2.1.2 (levels 10-11) on the Cyber 74 during Spring quarter break (March 20-26). On Saturday, March 13, from 2:00-6:00 PM, you may test your programs on the new system without charge. During this test period, all permanent files will be available and backed up.

Some of the changes which appear in this level of KRONOS are outlined below. For more information, see the following:

- (a) UCC Newsletter, December 1975 (page 2)
- (b) KRONOS 2.1 Reference Manual, Volume 1 (CDC#60407000D)
- (c) KRONOS 2.1 Timesharing User's Reference Manual (CDC#60407600D)

*Changes apparent to interactive users:*

(1) A new Telex command, ENQUIRE (abbreviated E), replaces STATUS. ENQUIRE has more features, see reference (c).

(2) OLD, NEW, and PRIMARY are no longer Telex commands; they are Batch permanent file commands. NODROP has been replaced by an ND parameter on the OLD and NEW commands.

(3) All permanent file commands are processed in Batch rather than by Telex. This means that accessing another user's permanent file catalog with an ACCOUNT or USER command will not allow the simultaneous access of your own permanent files as before. Issue another ACCOUNT or USER card to again access your own permanent files.

(4) The dayfile message limit is a standard validation. SETDFL can not be used to alter this limit.

(5) FTNTS (as described in reference (c)) is not available; we feel that MNF is better.

(6) The default character set is TTYD (the 61-character set now in use) rather than TTY (meaning the 63/64 character set of KRONOS 2.1.2). This means that the Telex commands CSET and CONVERT are not necessarily relevant.

(7) The automatic subsystem select feature (when accessing a permanent file as a primary file) will behave differently during the free test period and in CATLIST information for a while after conversion because of our plans to renumber the subsystems.

*Changes apparent to Batch users:*

(1) All permanent file commands, OLD, NEW, and PRIMARY, are available for batch jobs. All other permanent file commands now function as they do for interactive users; that is, an implied primary file will cause the command "SAVE." to work.

(2) The input and output queues are protected from system crashes; two new commands, RERUN and NORERUN, are supplied to permit you to select re-execution of a job. The default status is RERUN.

(3) The USER command is new and duplicates the ACCOUNT command.

(4) ENQUIRE and SUMMARY are new commands to aid in determining system information.

(5) The LENGTH command returns the status of a local file (including its sector length).

(6) The STIME command returns information on the use of System Resource Units (SRUs). However, UCC will not use these units for accounting purposes.

(7) The default loader used for relocatable and absolute programs is the LINK loader rather than the CYBER loader. The LOADER command, LOADER(LINK) or LOADER(CYBER), permits selection of one or the other.

(8) The CYBER loader does not reduce field length upon absolute overlay loads.

(9) The job name remains unchanged.

*Character set conversion:*

The defaults are the 63-character set for Batch and the 61-character set for interactive use. If we made the 63-character set default for interactive use, we would have severe problems with the many locally available software processors because of the shuffling of special characters and the changed meaning of NORMAL and ASCII modes. Therefore, although KRONOS 2.1.2 documentation describes a CONVERT command to aid in character set conversion and a CSET Telex command to select between ASCII and NORMAL modes, neither of these commands is relevant to the Cyber 74 user.

KRONOS 2.1.2 also provides the installation option to change to a 64-character set. UCC has not selected this option since we feel the advantages do not outweigh the possible ambiguities.

If you foresee any problems with this new operating system, please use our free testing period on Saturday, March 13th. If you run into problems, call the HELP-line (376-5592) for aid. The HELP-line will be answered by a senior staff member during this test period.

**FORTRAN**

--by L. Liddiard

The long awaited proposal for a new American National Standard FORTRAN has finally been released to the public (in the March 1976 issue of SIGPLAN notices). To give a flavor of the language, here are some of the new statements:

## Type and definition statements:

CHARACTER  
IMPLICIT  
INTRINSIC  
PARAMETER  
PROGRAM

## File manipulation statements:

CLOSE  
INQUIRE  
OPEN

Arrays will have optional lower bounds besides the normal upper bounds and have a maximum of seven (7) subscripts. DO loops do not have to execute once and will go in the reverse direction if the increment parameter (3rd) is negative. List directed input/output (format free) is allowed, along with many new specifiers similar to the END=sn and ERR=sn of current MNF usage. There will be generic functions (the function result takes the type of its argument) as well as the new intrinsic function names of ACOS, ANINT, ASIN, COSH, DACOS, DASIN, DCOSH, DDIM, DFLOAT, DNINT, DPROD, DSINH, DTAN, DTANH, IDNINT, LEN, LOG, LOG10, MAX, MIN, NINT, SINH, and TAN.

MNF will not have additional features added to upgrade it to the new standard, even though features such as PARAMETER and IMPLICIT and some of the intrinsic functions already exist in MNF. We want MNF to be a standard, stable product matching the existing ANS FORTRAN standard of 1966 and compatible with Control Data's FORTRAN Extended Ver. 4. We will do only error corrections on MNF and will make changes to the quote string to bring it into conformity with FTN Version 4. We plan to continue supporting MNF for the life of the Cyber 74 (probably through 1979).

CDC plans to release (for NOS operating systems) a FORTRAN Extended Version 5 to contain all the new standards. We also plan a new product, based on MNF and called F76, to match these 1976 standards. Work will begin on this at some future date.

**TAPES**

--by J. Sell

UCC has recently purchased a Kybe TMS70 MOD V off-line tape cleaner and evaluator and users will benefit from improved tape maintenance service in the future. Briefly, some of the features of this cleaner/evaluator are:

- (1) A clean only mode in which over 95% of all removable contamination is removed. NO DATA IS DESTROYED when the clean only mode is used.
- (2) An evaluation mode in which the tape is tested for errors and edge damage. The tape is cleaned before evaluation; ALL DATA IS DESTROYED when a tape is evaluated.
- (3) Threshold level selection is permitted; the level which will normally be used has been calibrated to our tape drives.
- (4) Header label protection is available to save tape label information.
- (5) Footage counter.
- (6) Packing wheel to give a smooth tape wind.

Tape cleaning is necessary because even a small particle of debris can cause a parity error. Contamination from the environment (the atmosphere, the tape drives, the operators) and from the tape itself cannot be completely prevented. UCC tries to remove all possible contaminants from the computer room but it is impossible to keep the environment completely "clean". Also, studies have shown that up to 85% of tape contamination is self-generated. A tape is wound under great pressure and the layers of tape shift over time; this abrasive action causes tape errors.

*New cleaning schedule:* No data is destroyed when a tape is cleaned. We have cleaned many test tapes and have found complete information verification even after as many as 110 cleanings. We feel that period cleaning is important and we intend to clean all stored tapes at least once every twelve months (at no cost to the owner). We are also developing a tape cleaning program contingent on tape usage so that heavier used tapes are cleaned more frequently.

Request slips for tape cleaning are available at all I/O sites; see sample below.

REQUEST TO HAVE TAPE TESTED		(LAUDERDALE)	
DATE-----	TAPE VSN-----	TAPE ID-----	
OWNER-----	ACCOUNT NO.-----	PHONE NO.-----	
TESTING	<input type="checkbox"/> 7 TRACK	<input type="checkbox"/> 9 TRACK	<input type="checkbox"/> 9 TRACK
FORMAT	<input type="checkbox"/> 7 BPI	<input type="checkbox"/> 9 BPI	<input type="checkbox"/> 1600 BPI
THRESHOLD LEVEL	<input type="checkbox"/> LOW	<input type="checkbox"/> NORMAL	<input type="checkbox"/> CRITICAL
(NORMAL IS RECOMMENDED.)			
LABEL PROTECTION	<input type="checkbox"/> DESTROY LABEL	<input type="checkbox"/> SAVE LABEL	
I UNDERSTAND THAT ALL DATA ON THIS TAPE WILL BE DESTROYED AND THAT THERE IS A CHARGE FOR THIS SERVICE.			
PLEASE SIGN-----	RETURN OUTPUT TO-----		

*Tape testing:* We will replace the current on-line procedure of using "certify" to test tapes with the evaluating mode of the off-line cleaner/evaluator. The advantages to this are (1) the evaluator checks the inter-record gaps which cause "certify" to skip a small percentage of the tape, and (2) the evaluator checks for edge damage beyond the normal 7 and 9-track format.

In addition, the evaluator cleans the tape before testing and provides an even wind and proper tension. A circular style printout is provided, showing the extent and location of parity errors and edge damage (if any). A request slip for tape evaluation is provided at all I/O stations; see sample above.

*Charges:* The charges for user-requested tape cleaning and evaluating are as follows:

**STANDARD RATE:** 1/10 cent per foot plus 10 cents for mounting; an additional 50 cents per reel if the tape is evaluated.  
 Examples: 2400 ft = \$2.50 (\$3.00 if evaluated)  
 1200 ft = \$1.30 (\$1.80 if evaluated)  
 600 ft = \$.70 (\$1.20 if evaluated)

**BULK RATE:** for users with large cleaning or evaluating needs; hourly throughput will be six (6) 2400 ft. tapes per hour, twelve (12) 1200 ft. tapes per hour, or twenty-four (24) 600 ft. tapes per hour. The minimum bulk rate charge is one (1) hour; for each reel over the one hour minimum, only the appropriate per reel charge is added.

*University departments:* \$10.00 per hour (plus 50 cents per reel if tapes are evaluated)

*All other groups* : \$12.00 per hour (plus 50 cents per reel if tapes are evaluated)

*Other changes:* Beginning April 1, 1976 there will be a \$100 additional charge for all users who store a tape in our library. This will cover the cost of cleaning the tape before it is put into storage. Users who buy tapes from UCC will not be charged this \$1.00 because we clean all our new tapes before selling them.

REQUEST TO HAVE TAPE CLEANED		(LAUDERDALE)	
DATE-----	TAPE VSN-----	TAPE ID-----	
OWNER-----	ACCOUNT NO.-----	PHONE NO.-----	
I UNDERSTAND THERE WILL BE A CHARGE FOR THIS SERVICE			
PLEASE SIGN-----			
THIS TAPE WILL BE CLEANED ONLY. DATA ON THE TAPE WILL NOT BE DESTROYED OR ALTERED IN ANY MANNER.			
FOR OFFICE USE			
OPERATOR-----	DATE AND TIME COMPLETED-----		
TOTAL FOOTAGE-----	-----		

**MEETING**

The Winter quarter open user's meeting was held on February 19th and was fairly well attended. The first hour was devoted to staff presentations

*KEVIN MATTHEWS, Systems group*

Described the changes to occur when the operating system is upgraded to KRONOS 2.1.2 (levels 10-11). A 2-page summary of the changes was handed out at the meeting and a further description of these changes appears on page 2 of this newsletter.

*NELLURI REDDY, Systems group*

Described the I/O queue protections offered with the new level of KRONOS, particularly the new RERUN and NORERUN control cards. See the article on page 2 of this newsletter.

*BARRY FOX, Accounting*

Described the new control card ACCSTAT, which examines individual accounts and provides dollar figures for previous runs, previous month's charges, and total charges for the current month. The PROFILE system should be available about September of this year.

*LINCOLN FETCHER, User Services*

Described the teaching video tapes in production or finished; announced the short courses scheduled for Spring quarter; Record Manager and SORT/MERGE courses will not be scheduled; call 373-7744 or 373-5754 if you need these courses.

*KEVIN MATTHEWS & LAWRENCE LIDDIARD, Systems group*

Described the mass storage improvements being planned (see February UCC Newsletter for an article). Described plans to encourage owners of large files to use the auxiliary devices.

There is still some uncertainty on the arrival date of these new devices. Be assured that installation will be delayed if the delivery date falls too close to the KRONOS conversion -- installation will be done only with a stable operating system.

*MICHAEL FRISCH, Program Librarian*

New plotters are being investigated; there are problems with the Varian; test programs are needed.

IMSL, FUNPACK, GPM, SIMPLX, MIMIC, PLOTPAC, and EISPACK are all being worked on to have versions compatible with FTN Ver. 4; they are now available via FETCH.

*LAWRENCE LIDDIARD, Systems and Operations*

The 1976 ANSI FORTRAN standards are now available (see article on page 2); these new standards will not affect MNF.

APLUM from the University of Massachusetts, an improved version of APL, will soon be available at Minnesota.

The improvements made to PASCAL at the University of Minnesota will be integrated at Zurich and will soon be available at Minnesota.

PL/1 is under investigation.

*RICHARD FOLDEN, Operations group*

UCC has purchased new equipment for tape cleaning and evaluating and will institute an automatic cleaning schedule for stored tapes. For details, see page 3 of this newsletter.

During the second hour of the meeting, the UCC staff members present fielded questions from the floor. The questions and answers that seemed to be of general interest are included in the SUGGESTION BOX section of this newsletter.

**LIBRARIES**

**FORTRAN EXTENDED LIBRARY -- by M. Frisch**

The FORTRAN Extended library, accessed via the FUTURE(FORTRAN) or FUTURE(FTN) control cards, was modified on February 21, 1976:

- MEANVAR - corrected to always produce a zero or positive variance.
- QRSYM - corrected a problem when parameter 3, KR, is zero.
- PLOTPAC - added to file FUTURE(FORTRAN); includes routines PLOTS, PLOT, SYMBOL, NUMBER, WHERE, WHEREAS, LYNE, AXIS, SKALE, SYMPLOT, DPLOT, POLPLOT, ASSIGN, PLTSCL.

**ALL SUBPROGRAM LIBRARIES --by M. Frisch**

During Spring quarter break, these subprogram libraries will be shifted so that "FETCH,name." will get the FORTRAN Extended Version 4 edition of each library and "PAST,name." will get the MNF or FTN Version 3 edition. The libraries affected are:

<u>FTN Version 4</u>	<u>MNF/FTN Version 3</u>	<u>Description</u>
FETCH,IMSL.	PAST,IMSL.	Math, statistics.
FETCH,EISPACK.	PAST,EISPACK.	Eigenvalues, eigenvectors.
FETCH,FUNPACK.	PAST,FUNPACK.	Elliptic integrals.
FETCH,GPM.	PAST,GPM.	Non-linear optimization.
FETCH,SIMPLX.	PAST,SIMPLX.	Linear programming.
FETCH,MIMIC.	PAST,MIMIC.	Analog simulation.
FETCH,PLOTPAC.	PAST,PLOTPAC.	FR-80 PLOTPAC.
FETCH,TEKLIB.	PAST,TEKLIB.	Tektronix 4010 PLOT-10.
FETCH,ALMAP.	PAST,ALMAP.	Algebraic manipulation.
	PAST,SSP.	Scientific subroutines.

Notes:

- (1) ALMAP will no longer be RUN-compatible -- only FTN 4 or MNF/FTN 3.
- (2) The IBM Scientific Subroutine Package, SSP, will not be available under FTN 4. A number of other installations have reported the poor quality of SSP; it will be phased out at UCC sometime in the future.

**IMSL EDITION CHANGES -- by D. Lienke**

During Spring quarter break, IMSL libraries will be shuffled to make the latest release (Edition 5) available.

- (1) IMSL Edition 3, now available as PAST,IMSL. will be discarded.
- (2) IMSL Edition 4, now available as FETCH,IMSL. for MNF, will be discarded.
- (3) IMSL Edition 4, now available as FETCH,IMSL44. for FTN, will be discarded.
- (4) IMSL Edition 5 will be available as FETCH,IMSL. (compiled with FTN Version 4, OPT=2) and as PAST,IMSL. (compiled with FTN Version 3, OPT=2).

**GPR31 TO DISAPPEAR -- by M. Frisch**

The Varian Statos 31 software package, GPR31, will be removed from the system during the Spring quarter break. The post-processor program, PSTPRC, which is up to ten times faster, must be used instead. Anyone who expects a problem in converting from GPR31 to PSTPRC should call or see Mike Frisch, 235d Experimental Engineering, 373-5907.

**SUMMARIES**

PRODUCTION USAGE SUMMARIES -- L. Liddiard & M. Skow

CDC Cyber 74	January 1976	January 1975
Number of jobs run	59,726	54,076
Central processor hours	128	94
Mass storage transfers (KPR)	124,534	-
Magnetic tape transfers (KPR)	6,157	-
Pages printed	666,637	661,391
Cards punched	475,101	429,927
Microfilm frames produced	13,144	40,958
Tapes mounted	8,153	6,861
Average file storage	596 million characters	408 million characters
Mean time between failures	14.2 hours	-
Percentage available during scheduled hours	95.1 percent	-

CDC 6400	January 1976	January 1975
Number of jobs run	156,816	251,982
Central processor hours	75	93
Terminal hours	22,755	30,133
Number of terminal sessions	48,732	69,470
Maximum number of simultaneous users	117	182
Average file storage	164.5 million characters	170.1 million characters
Mean time between failures	35.6 hours	18.6 hours
Percentage available during scheduled hours	98.0 percent	98.4 percent

**CYBER 74 DOWNTIME SUMMARY -- January 26 - February 25, 1976**

	Monday-Friday 0800 - 1600	other	total
Total possible scheduled uptime hours	220	316	536
Total downtime hours (see schedule A)	14.4	1.3	15.7
Total uptime hours	205.6	314.7	520.3
Uptime percentage	93.5 percent	99.6 percent	97.1 percent
Average downtime per occurrence	23.4 minutes	10.6 minutes	21.7 minutes
Mean time between failures	7.3 hours	45 hours	14.6 hours
<b>Subsystem failures</b>			
SUPIO	34	6	40
TELEX	2	0	2
EXPORT	13	3	16

**Schedule A: downtime hours**

	number of occurrences	total hours down	average minutes downtime
1) Preventive maintenance over-runs	8	4.78	35.9
2) Software related problems	6	.83	8.3
3) Hardware related problems	6	3.73	37.3
4) Indeterminate software/hardware problems	23	4.65	12.1
5) External problems	1	1.67	100.0

Seven of the eight occurrences under "preventive maintenance over-runs" were due to one of the disk drives not coming up correctly. We then had to reconfigure the disk drives to bring up the bad drive as a removable drive. This process cost us 4.65 hours of downtime.

R. Dykstra

**SUBMISSION SITE USAGE SUMMARY - TELEX EXCLUDED -- February, 1976**

submitted from	total jobs	% of jobs	pages printed	% of pages	cards read	% of cards
Lauderdale	4,803	7.1	256,696	24.3	2,117,369	16.5
ExpEng I/O	11,460	16.9	252,904	23.9	3,438,082	26.8
West Bank	10,129	14.9	133,775	12.7	1,709,194	13.3
6400	728	1.1	0		0	
SUPIO	40,889	60.1	413,147	39.1	5,575,326	43.4
<b>TOTALS</b>	<b>68,009</b>		<b>1,056,522</b>		<b>12,839,971</b>	

## 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.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Mar 29	Mar 30	Mar 31 INTRO TO UCC	Apr 1	Apr 2
Apr 5 Beg. FORTRAN COBOL	Apr 6 KRONOS Control Cards System 2000 Intro	Apr 7 Beg. FORTRAN COBOL	Apr 8 KRONOS Control Cards System 2000 Intro	Apr 9 Beg. FORTRAN COBOL
Apr 12 Beg. FORTRAN COBOL	Apr 13 KRONOS Control Cards System 2000 Intro	Apr 14 Beg. FORTRAN COBOL	Apr 15 KRONOS Control Cards System 2000 Intro	Apr 16 Beg. FORTRAN COBOL
Apr 19 Beg. FORTRAN COBOL	Apr 20 KRONOS Control Cards System 2000 Intro	Apr 21 Beg. FORTRAN COBOL	Apr 22 KRONOS Control Cards System 2000 Intro	Apr 23 Beg. FORTRAN COBOL
Apr 26 PASCAL LISP	Apr 27 KRONOS Control Cards Graphics	Apr 28 PASCAL LISP Graphics	Apr 29 KRONOS Control Cards Graphics	Apr 30 PASCAL LISP
May 3 PASCAL LISP	May 4 KRONOS Control Cards	May 5 PASCAL LISP	May 6 KRONOS Control Cards	May 7 PASCAL LISP
May 10 PASCAL System 2000/ PLI	May 11	May 12 PASCAL SPSS System 2000/ PLI	May 13	May 14 PASCAL SPSS System 2000/ PLI
May 17 System 2000/ RW	May 18	May 19 System 2000/ RW	May 20	May 21 System 2000/ RW
May 24 Adv. System 2000	May 25	May 26 Adv. System 2000	May 27	May 28 Adv. System 2000

INTRODUCTION TO THE COMPUTER CENTER: March 31; 2:15-4:00 PM, Mech 221  
 BEGINNING FORTRAN: April 5,7,9,12,14,16,19,21,23; 2:15-4:00 PM, Aero 21  
 COBOL: April 5,7,9,12,14,16,19,21,23; 2:15-4:00 PM, Aero 313  
 PASCAL: April 26,28,30, May 3,5,7,10,12,14; 1:15-3:00 PM, Arch 5  
 LISP: April 26,28,30, May 3,5,7; 3:15-5:00 PM, Aero 319  
 KRONOS CONTROL CARDS: April 6,8,13,15,20,22,27,29, May 4,6; 2:15-4:00 PM, Aero 21  
 SPSS: May 12 and 14; 2:15-4:00 PM, Aero 317  
 GRAPHICS: April 27,28,29; 7:30-9:30 PM, Lauderdale Conference Room  
 INTRODUCTION TO SYSTEM 2000: April 6,8,13,15,20,22; 2:15-4:00 PM, Aero 313  
 ADVANCED SYSTEM 2000: May 24,26,28; 2:15-4:00 PM, ChemE 40  
 SYSTEM 2000 PROGRAMMING LANGUAGE INTERFACE: May 10,12,14; 2:15-4:00 PM, ChemE 40  
 SYSTEM 2000 REPORT WRITER: May 17,19,21; 2:15-4:00 PM, ChemE 40

T/S

-- by A. Franck

The University Computer Center has the opportunity to borrow a Texas Instruments 745 terminal for demonstration. This terminal is small (only 12.5 pounds), operates at 10 and 30 characters per second, and uses thermal paper. The price for the terminal and acoustic coupler is about \$2000.

Any interested University staff person who is a potential buyer of this equipment may test the terminal for a few hours. To set up a schedule, call Abe Franck at 376-7291.

ISIS

--by B. Hinckley

A new version of ISIS was installed on February 23, 1976. This version is accessed on MIRJE by the command

ISIS

and on MERITSS by the commands

ATTACH,ISIS/UN=LIBRARY

ISIS

The older version of ISIS may still be accessed on MIRJE by the commands

PAST,ISIS

ISIS

and on MERITSS by the commands

ATTACH,ISIS=ISISOLD/UN=LIBRARY

ISIS

Many changes and corrections have been made in this new version, including new options for some programs and a more flexible data format for input files. The most significant changes are:

(1) All programs except SORDAT can handle data files of up to 150 characters, provided that the ISIS program "option" has been called first and the width option is set to the necessary length (if greater than the default width of 76 characters).

(2) UNIDES uses a different method for calculating percentiles which is realistic for most data. For small data samples, only quartiles or deciles are calculated.

(3) SCADIA can do multiple plots (on one grid) and can print minimum and maximum values for the data to aid the user in choosing bounds for the axes on such plots. The plot size is user determined, primarily to accommodate the CRT user.

(4) POLREG prints the standard errors of the estimates. The plot size is user determined as in SCADIA.

(5) MULTRE will accept data files with missing and/or alphanumeric values as long as these are not in the variables chosen for analysis. A new command, SAVER, has been added to allow the user to save data and residuals on a data file. A field length of 35000 is necessary to run MULTRE.

(6) EDIDAT will optionally check for missing values.

(7) GENDAT allows successive samples to be written as separate files on the same file name; to effect this, answer NO when asked if file is to be rewound before sample is written.

(8) The appearance of the word CONT anywhere on a line of data will be interpreted both as the end of data on that line and as an instruction to continue reading the data point from the next line.

A new ISIS manual is in preparation; it will provide detailed documentation of the current ISIS conventions and programs, including input and output.

After March 15, 1976, questions and problems with ISIS should be directed to Mr. S. Lin, 214 Experimental Engineering.

????

? Given the VSN assignment scheme, use of the NT parameter when labeling a 9-track tape is unnecessary. All VSNs less than SN6000 should default to MT and those over SN6000 should default to NT. (2/2/76)

A We plan to do this, along with other automatic defaults. We will implement it as a small part of a larger addition to the tape processing routines that should be ready in full during Summer break. (W. Elliott)

? When defective jobs are returned to UCC for credit, there is no indication when a user's account has been credited. Indeed, one might never know. There should be some indication on user billings of credits, etc.

A Coming soon. (J. Foster)

? A mundane suggestion: how about coat racks or hooks in the keypunch and user rooms? (1/28/76)

A The cost of outfitting all 30-some user areas with coat racks is quite large, but we'll keep it in mind. (R. Franta)

? It costs \$1.50/KPR to read tapes. For tapes F=B, that's \$3.00/box to read equivalent. \$1.50 to read 1000 cards is a lot out of line. Please adjust appropriately. (2/2/76)

A The accounting statistic supplied by the KRONOS operating system is a count of the physical records transferred between the CPU and the tapes. We recommend blocking card images on a tape. (L. Liddiard)

? Is there any consideration being given to purchasing some more 029 keypunches to take care of the Computer Science students writing PASCAL programs needing all the special characters? (2/9/76)

A Yes, more 029 keypunches should be available in the next school year (Fall, 1976). (L. Liddiard)

? Publish a list of FTN Version 4 pitfalls involving Record Manager in particular. Some of the procedures that users are accustomed to do are not workable and are not discussed in the conversion guide (such as PACK).

A A document will be prepared indicating bad experiences with the Cyber Record Manager (CRM) and will be made available via WRITEUP. Note that most problems associated with CRM are due to two causes: (1) unfamiliarity, and (2) system utilities (for example, COPYBR, PACK), which operate on system logical records, not CRM logical records. (D. Lienke)

? Back in the days of BC (Before Cyber) there existed a handy routine called GROVEL, a great time saver for those using programs which had a large number of overlays. May we expect to see this facility sometime in the near future? (2/9/76)

A Yes, a random file overlay loader is usable now and a writeup is in preparation. For those who remember this facility: the option allowing overlays to reside in ECS is NOT available though it may be added in the future. The old utility GROVEL has been replaced by an option in LIBEDIT. (D. Lienke)

(Continued on page 9)



(Continued from page 8)

? Why isn't there documentation on the Tektronix software? (User's meeting)

A The Tektronix software was acquired by another University department. We have never had people available to work on it; we have placed the software on the library but assume it is still the responsibility of the department involved.

(M. Skow, MERITSS)

Since the software is now available on MIRJE, we will produce documentation and place it on WRITEUP and INFORM. (M. Frisch)

? Why do you start your meetings on the hour rather than 15 minutes after (as normal classes do)? (User's meeting)

A When we call a meeting for 2PM we generally get started at 2:15 -- we will consider coordinating our meetings and classes closer to the regular class schedule, however. (R. Franta)

? Do you still have problems with 9-track tapes produced at other installations? (User's meeting)

A Generally, no. I think most problems have been resolved; most questions I get are about the confusion over code conversion. I believe that this is finally documented satisfactorily.

(W. Elliott)

? The phone for the 1004 at Lauderdale quite often does not give a dial tone for a while. (2/9/76)

? Either get that 1004 (at Lauderdale) working reliably or get a new terminal! (2/2/76)

? When visiting Lauderdale for a work session involving transient tapes and the 1004, I found it as hard to use as the one on the West Bank. Job decks read didn't make it into the system; the 1004 hung after reading jobs; I had to reconnect. Why are 1004's so very cranky? (2/2/76)

A We attempt to keep all the 1004's working reliably. Our statistics indicate that reliability is greatly affected by the care exercised by users as well as by the terminal's total usage. The Lauderdale terminal is heavily used but we have others which have greater usage and fewer problems. We usually respond to service requests within three hours but we depend on you to report troubles. If you think a terminal is not functioning properly, report the problem to the supervisor (names and telephone numbers are posted on the front of the 1004) and describe the problem in the log book. Following your report, the supervisor will request service if it seems necessary. We depend upon the local supervisor to request service since one must usually be on-site to determine that service is required. All 1004 users can help assure terminal reliability by (1) learning how to operate the terminal correctly (refer to the UCC writeup "Univac 1004 Operating Instructions") and (2) reporting all problems as they occur.

If you wish to discuss some aspect of our service, please feel free to call Doug Parkes, 376-7067.

As to the third question, assuming that the decks involved were structured and read properly while the 1004 was actually "in communication" with the Cyber 74, the decks DID make it into the system. There is only one apparent reason why a job residing in the system and originating from a batch terminal would produce no output and appear to disappear. When a level 0 (normal) deadstart

occurs during the life of a job in the system, all queues (input, output, timed-event, etc.) are lost. Queue protection is one of the principle improvements of KRONOS Level 11 which UCC will install in March. Under Level 11, queues are recovered after a normal deadstart; that should bring an end to this specific type of inconvenience.

SUP10 automatically disconnects any terminal that has been idle for 2 1/2 minutes and displays the message "TIMED OUT." This is done to keep idle connections to a minimum and ease the logjam that occurs during prime hours when port usage is at its maximum. We can only assume (with no specific information) that this is probably why the 1004 disconnected after your decks had been read and why reconnection was necessary. Please note that this disconnect algorithm will be changed in the near future in an attempt to use the ports more efficiently; there will be less inconvenience to users during non-prime hours (see UCC Newsletter, January, 1976, page 4).

If you have specific problems or any general questions about the 1004, please feel free to call Greg Jensen at 373-5754.

In summary, the 1004's perform most reliably when their problems are reported and serviced promptly and when users know how to use them properly.

If you have problems with a 1004, call the local supervisor, Rich Franta (376-3963), Greg Jensen (373-2522) or the HELP-line consultant (376-5592) to discuss them. (D. Parkes & G. Jensen)

## video

An instructional video tape on the operation of the Univac 1004 RJE terminal is now available. The tape is 25 minutes long and may be viewed at the Walter Library Learning Resources Center, 204a Walter Library or at the St. Paul Instructional Resources Center, Temporary South of Coffey (student section). Ask for COMP2 or the 1004 video tape.

You may get your own copy of the tape by sending a blank tape to:

Lincoln Fetcher  
University Computer Center  
227 Experimental Engineering  
University of Minnesota - Twin Cities  
Minneapolis, Mn 55455

## GPSS

During Spring quarter break, GPSS Version 3 (from Northeastern University) and the Navy Version 5 of GPSS (GPSSP) will become unavailable. The CDC/Northwestern University version of GPSS V will be the only version available. As new releases of CDC/NW GPSS are received, they will be made available as FUTURE GPSS.

To summarize, after quarter break the only valid control card will be:

GPSS(parameters)

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  
 Complete 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

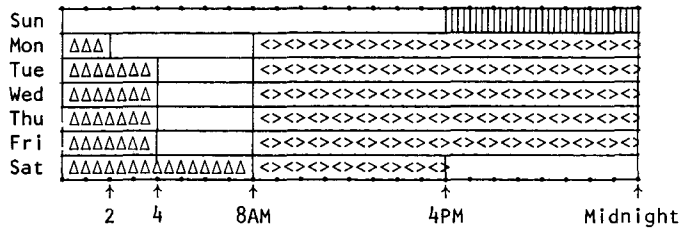
ABCLIST Extended CATLIST utility (1 page)  
 AMEND Unit record manager (4 pages)  
 ARCHIVE Latest listing of archived files.  
 BLANK Initial label writing (2 pages)  
 → BLOCKER Write blocked stranger tapes (3 pages)  
 → CALLPFM FORTRAN 4 P.F. routines (7 pages)  
 → CALLPRG Library search extension (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)  
 CIMSPL1 CIMS PL/1 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)  
 SNAPSHOT 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.
□ (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\*



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

\*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.

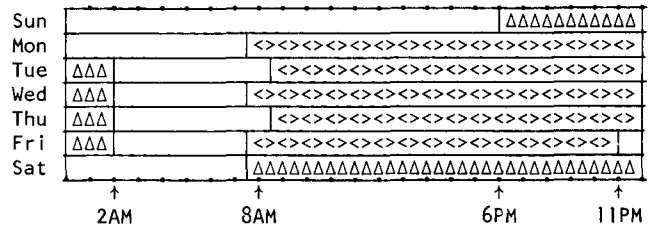
## UOFM-TWIN CITIES RJE SITES

site	ID	supervisor(s)
<i>East Bank</i>		
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	
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
<i>West Bank</i>		
SocSci 167	4X	J. Shea 373-3608
<i>St. Paul</i>		
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
<i>Lauderdale</i>		
User's Room	49	Shift Coordinator 373-4940

## 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)	

## CDC 6400 (MERITSS) OPERATING HOURS



<><>< up, attended  
 ▲▲▲▲▲ up, not attended

## UOFM-TWIN CITIES INSTRUCTIONAL TIMESHARING LABS

site	supervisor
<i>East Bank</i>	
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	D. Boyd 373-7581
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
<i>West Bank</i>	
MdbhH Computer Room	P. Johnston 376-6561
SocSci 167	J. Shea 373-3608
<i>St. Paul</i>	
ClaOff 125	S. Weisberg 373-1068

## 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

## 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

brief

HELP WANTED -- A department of state government is looking for a student to work part time on timesharing programs. A description of the job telling the hours, salary, and duties is posted in the timesharing labs and on the Experimental Engineering bulletin board.

BUYING REFERENCE MANUALS -- Because of a problem with stocking computer reference materials (they become outdated very rapidly), the Engineering Bookstore has decided that they will handle the manuals in the following way:

ALL CONTROL DATA REFERENCE MANUALS -- WILL NOT be stocked as reference books; the bookstore will special order any manual in the CDC catalog; delivery is reasonably rapid, about one week.

SPSS Edition 2 -- WILL be available as a reference book; stocked in both the Engineering Bookstore and H.D. Smith Bookstore.

BMD, BMDP -- WILL be available in Engineering Bookstore.

SYSTEM 2000 REFERENCE MANUAL, IMSL LIBRARY CATALOG -- WILL NOT be stocked as a reference book; may be special ordered; delivery is reasonably swift.

PASCAL, The Little LISPER, SNOBOL4 PRIMER, APLUM -- will be stocked as regular reference texts.

IMSL LIBRARY CATALOG -- An update package designed to convert a Library 3, Edition 4 manual to Library 3, Edition 5 may be ordered through the Engineering Bookstore. Price is \$15.00.

UNIVERSITY COMPUTER CENTER  
227 EXPERIMENTAL ENGINEERING  
UNIVERSITY OF MINNESOTA  
MINNEAPOLIS, Mn 55455

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