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Deadline for the March issue is February 22 -- readers are invited to submit articles.

BULLETINS

→ DON'T FORGET THE USER'S MEETING!!!!!!

TUESDAY, FEBRUARY 14TH

1:15 - 4 PM

ROOM 370 ANDERSON HALL, WEST BANK

UCC STAFF MEMBERS WILL BE PRESENT TO ANSWER QUESTIONS.

THE MAJOR TOPIC WILL BE THE PROPOSED AUGMENTATION OF THE CYBER 74 (SEE THE ARTICLE ON PAGE 10).

COFFEE AND COOKIES WILL BE SERVED.

UCC newsletter

VOLUME 12 NUMBER 2 FEBRUARY, 1978

Director: Peter C. Patton

Editor : A. Koepke

Comments about the content of this newsletter, or suggestions for changes may be directed to the editor, 235a Experimental Engineering, 373-7744.

The University of Minnesota adheres to the principle that all persons shall have equal opportunity and access to facilities in any phase of University activity without regard to race, creed, color, sex, age, or national origin.

CYBER 74

DISCLAIMER

This Cyber 74 expansion is only a proposal at this time. The Board of Regents must approve this proposal before anything takes place. We will not make any firm commitments until such approval has been obtained.

It is also important to note that many of the items presented are first cut proposals: several task forces are still studying the various aspects of the expansion in order to make firm recommendations in the near future. As always, any suggestions which you, our users, wish to provide would be welcome.

INTRODUCTION

The January Newsletter carried an article announcing the proposed expansion of the existing Cyber 74 computer system at University Computer Center. This article is intended to keep users informed as to the status of that expansion.

The Cyber 74 has become heavily loaded, to the point where response time for interactive work and turnaround for batch work are being adversely affected. The proposed acquisition of a Cyber 172 and associated peripherals is designed to relieve some of the load on the Cyber 74. If the Cyber 172 is installed, it will be an "interactive oriented" machine; this will allow the Cyber 74 to be a "batch oriented" machine.

This proposed acquisition of the Cyber 172 and associated peripherals has passed through numerous University and State Committees and has met with approval at all levels so far. However, this acquisition must still be approved by the Board of Regents; it should not be considered official until acted upon by the Regents. However, we have organized and begun work on the assumption that the proposal will be favorably acted upon by the Regents. An "Enhancement Steering Committee" has been at work within UCC to coordinate the many studies and proposals being undertaken by various task forces. This article reports on a) decisions already made at UCC, and b) decisions being considered.

CONFIGURATION

The equipment being added to the UCC configuration is: a) a 131K dual processor Cyber 172 with 10 peripheral processors; b) additional nine track tape drives; c) additional mass storage (disk) controllers; d) a CDC 580 train printer. (Refer to the January Newsletter for a more complete description.) Functionally, the Cyber 74 and the Cyber 172 will share and be able to communicate through some common disk drives and Extended Core Storage (ECS). The two machines will also share the existing seven track tape drives. The CDC 6400 (MERITSS) will also share ECS.

This configuration will allow the Cyber 172 to be accessed through the Remote Job Entry Network currently centered on the Cyber 74. The system will also be capable of supporting shared mass storage files. These files will include the operating system, input/output queues, UCC software libraries, and a restricted number of

user files. The majority of user mass storage files will continue to reside upon the machine primarily used by a user. Each machine will have its own set of nine track tape drives. Users should note that UCC is placing emphasis on nine track tapes in this expansion and will probably continue to follow the computer industry in a gradual switch to all nine track tape processing.

SOFTWARE

The enhanced Cyber 74/172 computer system will run the Network Operating System (NOS), a standard software product from CDC. NOS is the CDC replacement for KRONOS now that KRONOS is no longer supported by Control Data. In returning to the use of a standard CDC supported operating system we will experience the same advantages and disadvantages we were subject to when KRONOS was a supported, evolving product. While it may not always seem so, the advantages outweigh the disadvantages. Primarily, we are able to utilize new or revised software products issued by CDC and other NOS sites; initially these products include the 1974 ANSI COBOL compiler and the CDC data management system, DMS 170. The version of the operating system which will be initially implemented on the system will be NOS, Release 3; this version has some differences from our current KRONOS system, but these differences are relatively minor. We will eventually move to NOS, Release 4 in order to take advantage of various enhanced features of the Cyber 172. (See the section on "Schedules" below.)

SYSTEM MANAGEMENT CHANGES

Assuming that we are authorized to introduce the enhanced system and the new operating system, we will be making a number of other changes in order to take advantage of facilities within the operating system and/or to provide features long requested by users. Billing will be changed to be dependent on the System Resource Unit (SRU). An SRU is a single number designed to measure the amount of resources a job consumes. The SRU takes central processing time, mass storage transfers, and magnetic tape transfers into account; the SRU may also utilize central memory residence time, ECS, and permanent file activity in its calculation. These relationships are currently under study and the exact computation and charge schedule has not yet been determined.

UCC will also move toward a common user number scheme. That is, a single user number will be capable of being used for batch on the Cyber 74, timesharing on the Cyber 74, batch on the Cyber 172 and timesharing on the Cyber 172 if that user number is authorized for any or all of these access methods.

The movement to SRU accounting and single user numbers will enable UCC to give serious consideration to project control, project accounting, and a generalized priority scheme to expand the current capability of the DELAY queue mechanism.

PHYSICAL PLANT CHANGES

The major noticeable change in the UCC physical plant will be a rearrangement of the User's Room at Lauderdale. (See the article on page 12 of

this Newsletter.) All of the input/output equipment for the enhanced computer system will be moved to the west end of the Lauderdale computer room; this area shares a common wall with the User's Room. By cutting down the distance, opening a door and installing an I/O window in the User's Room, operations personnel will be able to provide continuous I/O service at the Lauderdale site. UCC will also be constructing some new offices in the west end of the current User's Room. By consolidating and replacing the existing storage shelves in the user area, little decrease in the user area will be noted.

SCHEDULES

Date	Event
3/31/78	Cyber 172 Installation, running NOS 3 Cyber 74 will continue to run KRONOS Enhanced XMIT/SEND implemented to allow communication between the machines during the interim. File utility provided to allow bulk or selective transfer of files between the machines.
6/15/78	Cyber 74 begins running NOS Release 3 Full multi-mainframe software runs Compatible operating systems on both machines
7/1/78	Uniform user numbers on the Cyber 74/172 system
12/15/78	Both machines upgraded to NOS Release 4

SUMMARY

UCC is attempting to make this enhancement as painless as possible for the users. We will be providing free test time for those users who transfer the bulk of their processing to the Cyber 172; we will also be designating a coordinator within UCC User Services to assist those users in the changeover. Future Newsletter articles will contain more details of the enhancement as studies are completed, decisions are made, and details ironed out. Users are encouraged to read these articles; USERS ARE ESPECIALLY ENCOURAGED TO ATTEND THE UCC USERS MEETING TO BE HELD AT 1:15 PM, FEBRUARY 14th in Room 370 Anderson Hall, West Bank. The main topic of discussion at this meeting will be the enhancement; the decision of the Regents will be known at this time.

P. Patton, 373-4361

2. Purchase a VADIC 3415 modem from the local supplier for approximately \$915. A VADIC DAA is also available for an additional \$135. (The DAA can be leased from Northwestern Bell for about \$6 per month.)

These charges are paid directly to Bell or to the local supplier. We will charge you for connect time at \$2.50 per hour (internal rate) or \$5.50 per hour (external rate).

For hard copy devices, we have tested the GE TERMINET 1232 and the DECWRITER III at the 1200 baud rate. In addition, a hardwired TELERAY CRT has been in use at Lauderdale for the past several months. Within the next two months the Engineering Group at UCC will select which 1200 baud terminals will be supported by in-house maintenance.

In order to determine the demand for these ports, would anyone planning to connect at 1200 baud or wishing to purchase the VADIC modem, please call Dan Whealdon at 373-4877.

L. Liddiard, 373-5239
D. Whealdon, 373-4877

FTN

The FTN3 compiler that is now accessed as PAST,FTN will no longer be available once the NOS system is installed on the Cyber 74. This change is planned for June 15, 1978.

Although the FTN3 compiler-associated library, FT3LIB, will still be available after that date, we strongly recommend that you start converting all existing FTN3 programs (and data files if necessary) immediately. For conversion aids, please see the "FTN3 to FTN4 Conversion Guide" and the "Version 3 to Version 4 Data File Conversion Guide" (available in 235a ExpEng).

A new release of FTN4 will be used for the NOS system and will be available for testing during the NOS test periods. Testing periods will be announced later when we have a firm timetable for conversion.

M. Riviere, 376-5606

TIMESHARING

We have installed two 1200 baud rotaries for users; this service will begin on February 16, 1978. One 3-port rotary will allow Bell 212A modem access and the other 2-port rotary will allow VADIC 3415 access. To use these rotaries, you must have a telephone with a data access button. You then either:

1. Rent a Bell 212A modem from Northwestern Bell for about \$37 per month (other combined initial payment/lower rent plans are available from Northwestern Bell), or you

RJE

A new writeup file is now available which includes all of the SUPIO statistics for 1977. This file is in the same format as the monthly report (RJEMTOT) and may be obtained by executing the control statement, WRITEUP,RJE1977.

G. Jensen, 376-5754

FROM THE DESK

Our major concern this quarter is preparing for a hoped-for upgrade of the Cyber 74 and conversion from the KRONOS to the NOS operating system. On Valentine's Day, Tuesday, February 14 at 1:15 PM in the auditorium in 370 Anderson Hall, we will meet with you to tell you all we know about the progress of our upgrade and conversion plans. All of our senior staff members will be present and available to answer questions.

Note that we will meet in 370 Anderson Hall rather than in the previously announced room. The format of the meeting will be that each speaker will be followed by a question and answer period. After all the presentations have been made, we will have a general question and answer plus a user's forum, if desired. Coffee and cookies will be available. COME AND BRING YOUR COLLEAGUES.

* * *

A few puzzled questions from users prompt me to reiterate the following information. Our computers routinely give you a slightly reduced version of the MNF compiler when you are running under the TELEX subsystem in normal timesharing mode. We call this version TSF.

When you are running in the BATCH subsystem or in the usual Batch manner with cards, the system will give you the larger version. You are correct in either case to type MNF and let the system call the version appropriate to the occasion.

* * *

EDUCOM INQUIRIES

The University of Illinois is looking for software that has specific applications to a center for performing arts that might be transportable to a mini-computer or a Cyber. In particular, they are looking for accounting, inventory, payroll, scheduling, etc. programs. If anyone knows of such programs, please call Thea Hodge at 373-4599.

An invitational workshop is being planned for this spring by EDUCOM. The focus will be on computer resource sharing in Chemical Engineering research. The objectives of the workshop are to:

Identify outstanding computer-based resources (systems, programs, data bases, etc.) applicable to research in Chemical Engineering.

Identify the subset of the above resources that could and should be made more widely available within the discipline.

Identify obstacles that inhibit such sharing.

Develop an action plan to increase the sharing of computer-based resources useful in Chemical Engineering research.

EDUCOM is looking for chemical engineers who could make a significant contribution by helping to organize or by participating in this workshop. Those involved should have the following characteristics:

Be an active researcher in Chemical Engineering.
Have a significant interest in the use of computer-based resources in research.
Be involved in disciplinary associations and aware

of other research activities in the discipline.

Please call Thea Hodge at 373-4599 if you are interested.

PDP 11

A program has been developed which, with the appropriate hardware, will allow a PDP-11 to send jobs to the Cyber 74 and receive the output. A similar program has been written for PDP 8s. For further information, please call L. Elie May at 376-5608.

The number of PDP-11s on campus is constantly increasing and no one really seems to know how many there are and what their configurations are. In order that we may cooperate with each other on software and hardware levels, I would like to request that PDP-11 owners and users contact me. I would like to know:

1. Hardware configuration
2. Software configurations (operating systems, applications, etc.)
3. Owner's name, address and phone number.

Please write to me at:
University Computer Center
227 Experimental Engineering
University of Minnesota
208 Union Street SE
Minneapolis, Mn 55455

or give me a call.

L.E. May, 376-5608

LAUDERDALE CHANGES

We have been reorganizing the equipment within the computer room at Lauderdale. This reorganization includes moving the I/O equipment (card reader, line printers, card punch, and plotter) to the west end of the computer room. This move will put the equipment adjacent to the current user's area. We will reactivate the door from the computer room to the current user job submitting area and plan to significantly upgrade our I/O service by providing continuous input and output service rather than the current 15 minute I/O runs. Some method for submitting decks directly into the I/O area is being considered to further enhance I/O efficiency.

Limited additional staff office space is also planned for the Lauderdale site. We anticipate no net loss of user work area since we are also planning to consolidate our storage area. This will be done by replacing our existing storage shelves with lockable metal cabinets and restricting storage to active users while reducing the space allocated for UCC materials. The outcome of these projects should be an overall improvement in the services and work environment available to our users at the Lauderdale site.

J. Larson, 373-7538

SYSTEM 2000

DOCUMENTATION

System 2000, Version 2.60 was updated to Level D on both the Cyber 74 and the 6400 computer systems during the week of January 31st, 1978. The following bugs were fixed with this update.

New and revised WRITEUP documents

10JAN78 CATLSYS Extended CATLIST utility.
07DEC77 CODING KRONOS coding conventions.
16JAN78 COPYMF COPY MULTI-FILE TAPES.
03NOV77 DECLIST Optimized print time on T/S terminal.
03NOV77 IMSL IMSL documentation (indexed).
16JAN78 PERMITS Information on permanent file permits.
28NOV77 REBLOCK Converting stranger tapes.
04JAN78 RJE1977 SUPIO statistics for 1977.
16DEC77 STRATEN Straighten COMPASS source.

WRITEUP files with routinely changing information

AFLISTS Latest archived permanent files.
AFmmyy Lists of archived files; month, year.
CLASSES Short course schedule and descriptions.
CONSKED Consulting schedule.
CONSULT Consulting sites and hours.
DOCLIST List of documentation and publications sources.
HOURS Operating hours.
NOTE T/S system notes.
PREVIEW Preview display dump.
PTRFORT List of FORTRAN bugs.
PTRKR List of operating system bugs.
PTRMISC List of miscellaneous software bugs.
PTRSTAT List of statistics packages bugs.
PTRS2K List of system 2000 bugs.
RJDSTAT Daily SUPIO statistics.
RJEMTOT Monthly SUPIO statistics.
RJMSTAT Cumulative SUPIO statistics.
SITEBIN Output shelf locations.
SYSMODS Latest system changes.
TSTATS Tape mounting statistics.
VIDEO Instructional video tapes.

New printed publications

Guide to Magnetic Tape Usage (\$2.20)
ISIS User's Manual (free)
MNF: Optimization (reprint of App. K, free)
MNF: FORTRAN Optimization (reprint of App. J, free)
IMAGPLT: write plot files to Dicommed image processor
SPSS-6000 Version 7.0 introduction

Revised printed publications

Guide to Paper Tapes (free)

BUG #	DESCRIPTION
1328	Report Writer prints all dates in year 2xxx as year 1xxx.
1918	(PLILGO and RWEXIT only) register A0 gets used in PLI processing and not reset before returning to user program.
2032	Report Writer fatal execution error when picture greater than 40 characters.
2050	Change in picture size causes loss of password authority for component changed.
2053	In Report Writer infinite physical page size causes form feed at end of logical page.
2058	Pad text values with one binary zero and the rest blanks in PLI schema on retrieval.
2064	Reload causes TCTABLE to grow.
2085	Index to text values with trailing blanks sometimes built wrong. Max later result in System Error Code 251.
2085	ASSIGN CxCy fails when Cx and Cy are dates and two digit year format is one.
2102	Report Writer aborts on DISABLE/ENABLE execution commands.
2106	(PLILGO and RWEXIT only) PLI job with user overlays malfunction if version 1.1 or later of Cyber Loader is used. Errors vary and are unpredictable.
2114	(Applies to COBOL and FORTRAN precompilers only) card input to the precompiler accepts errors after last comma on line.
2117	Recovery after disk full fails when installation option 31 is on.
2166	Return code of 15 after INSERT on one data after GET1 on second data base.
2168	Occasional incorrect sector count on TUTABLE occurs on DBM IS... command.
2171	STOP S2K command in PLI does not always cause all scratch files to be returned.
2173	Occasional incorrect sector count on TUTABLE occurs on DBM IS... command.
2174	Installation option 5 (system library load) not working properly.
2212	Queue mode where clause may fail to qualify all appropriate data sets when two or more conditions in the queue/terminate session have sort keys which are similar.

J. Cosgrove, 376-1761

PRODUCTION USAGE SUMMARIES

	<u>December, 1977</u>	<u>December, 1976</u>
CDC Cyber 74		
Number of Batch jobs and MIRJE sessions	74,096 (81,281)	61,300 (71,504)
Total Central processor hours inc. DELAY	151 (183)	135 (179)
DELAY queue processor hours	44 (46)	-
MIRJE terminal hours	6,888 (8,450)	-
Mass storage transfers (KPR)	227,806 (297,368)	149,648 (194,051)
Magnetic tape transfers (KPR)	4,982 (6,801)	4,154 (5,946)
Pages printed, charged from UCC	726,827 (812,611)	626,015 (727,643)
Cards punched	293,311 (322,374)	358,611 (385,665)
Microfilm frames produced	26,550 (264,706)	7,282 (202,837)
Status plotting production (feet)	6,544	4,734
Tapes mounted	9,130	7,130
Average file storage (2210M available)	1,116.9 million char	883.1 million char
Mean time between failures	9.3 hours	22.6 hours
Available during scheduled hours	96.7 percent	97.9 percent
SUPIO uptime during available hours	97.3 percent	-
(totals in parentheses include staff development, accounting, and maintenance runs)		
CDC 6400		
Number of jobs run	106,657	114,153
Central processor hours	73	78
MERITSS terminal hours	15,080	14,976
Number of terminal sessions	30,147	27,513
Maximum number of simultaneous users	121	111
Average file storage	233.7 million char	220.1 million char
Mean time between failures	87.1 hours	70.9 hours
Available during scheduled hours	99.9 percent	99.3 percent

CYBER 74 DOWNTIME SUMMARY : January, 1978

	<u>Monday-Friday</u> <u>0800-1800</u>	<u>other</u>	<u>total</u>
Total possible scheduled uptime hours	210.	298.	508.
Total downtime hours (see Schedule A)	3.9	9.6	13.5
Total uptime hours	206.1	288.4	494.5
Uptime percentage	98.1 percent	96.8 percent	97.3 percent
Average downtime per occurrence	33.4 minutes	52.9 minutes	45.0 minutes
Mean time between failures	30.0 hours	27.1 hours	28.2 hours
Subsystem failures			
SUPIO	8	11	20
TELEX	0	0	0
EXPORT	2	2	4

schedule A: downtime hours

	<u>Number</u>	<u>Total hours</u>	<u>Average minutes</u>
(1) Preventive maintenance over-runs	1	0.2	12.0
(2) Software related problems	0	0.0	0.0
(3) Hardware related problems	8	9.1	68.3
(4) Indeterminate software/hardware problems	11	4.2	22.9
(5) External Problems	0	0.0	0.0

SUBMISSION SITE USAGE SUMMARY: TELEX EXCLUDED : January, 1978

submitted from	total jobs	%	pages printed	%	cards read	%
Lauderdale	2,781	4.4	356,746	29.7	1,466,083	14.0
ExpEng	6,648	10.4	224,180	18.7	2,133,930	20.4
West Bank	7,511	11.8	92,750	7.7	1,242,488	11.9
6400	1,253	2.0				
SUPIO	45,708	71.5	526,455	43.9	5,622,173	53.7
TOTALS	63,901		1,200,131		10,464,674	

WINTER QUARTER 1978 SHORT COURSE SCHEDULE

FORM IS: COURSE, DAYS, TIME, DATES, LOCATION, INSTRUCTOR.

INTRODUCTION TO UCC : T, 2:15-4PM, 10 JAN, MECH E 221, RTF
BEGINNING COMPASS : TTH, 2:15-3:45PM, 10 JAN - 2 FEB, EXPENG 193 *
INTERMEDIATE COMPASS : TTH, 2:15-4PM, 10-26 JAN, FORD H 40, KCM
INTERMEDIATE FORTRAN : MWF, 2:15-4PM, 11-27 JAN, VINCENT H 2, RTF
INTRODUCTION TO SYSTEM 2000 : MWF, 2:15-4PM, 16-27 JAN, FORD H 40, JC
APL : MWF, 3:15-5PM, 16 JAN - 3 FEB, AERO 21, JH
KRONOS CONTROL STATEMENTS : TTH, 2:15-4PM, 17 JAN - 9 FEB, VINCENT H 2, RTF
DUMP, LOAD MAP READING : TH, 2:15-4PM, 9 FEB, VINCENT H 2, RTF
SPSS (COMPUTER NEOPHYTES) : M, 2:15-3:30, 30 JAN, VINCENT H 1, SPY
SPSS (SPSS NEOPHYTES) : T, 2:15-3:30, 31 JAN, VINCENT H 1, SPY
SPSS (SPSS INTERMEDIATES) : WTH, 2:15-3:30, 1-2 FEB, VINCENT H 1, SPY
SPSS ON LINE : F, 2:15-3:30, 3 FEB, VINCENT H 1, SPY
COBOL : MWF, 2:15-4PM, 30 JAN - 17 FEB, FORD H 40, JC
BEGINNING FORTRAN (NITE) : MWF, 6:15-8PM, 6-24 FEB, AERO 21, RTF
PASCAL : MWF, 3:15-5PM, 6-24 FEB, AERO 21, ABM
PLOT/PAC : TWTH, 7:30-9:30, 7-9 FEB, LAUDERDALE CONF RM, KM
WINTER QUARTER USER MEETING : T, 1:00-4PM, 14 FEB, SOC. SCI. 850 *
INTRODUCTION TO TIMESHARING : TTH, 2:15-4PM, 14-16 FEB, FORD H 40, RTF
SYSTEM 2000/REPORT WRITER : MWF, 2:15-4PM, 20-24 FEB, FORD H 40, JC
ADVANCED SYSTEM 2000 : MWF, 2:15-4PM, 27 FEB - 3 MAR, FORD H 40, SPN
RECORD MANAGER : MWF, 2:15-4PM, 27 FEB - 3 MAR, MINMET 120, JC
PROGRAMMING STYLE : MWF, 2:15-4PM, 27 FEB - 3 MAR, VINCENT H 2, RTF
SORT/MERGE : MWF, 2:15-4PM, 6-10 MAR, MINMET 120, JC
SYSTEM 2000/PLI : MWF, 2:15-4PM, 6-10 MAR, FORD H 40, SPN

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208 UNION STREET SE
MINNEAPOLIS, MN 55455

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