UNIVERSITY COMPUTER CENTER

UNIVERSITY COMPUTER CENTER, UNIVERSITY OF MINNESOTA-TWIN CITIES, MINNEAPOLIS, MINNESOTA

CONTENTS

BULLETINS

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CYBER 172 HOURS EXTENDED

ADDITIONAL HOURS FOR THE CYBER 172 ARE 1600 HOURS SUNDAY THROUGH 0115 MONDAY.

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LABOR DAY HOLIDAY HOURS:

	DOWN	UP
LAUDERDALE	1600 SAT SEPT 2	1800 MON SEPT 4
EXP ENG	1600 SAT SEPT 2	0800 TUE SEPT 5

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CONFUSED ABOUT SRU'S AND NOS TIME LIMITS?

FOR AN EXPLANATION OF HOW SRU'S AND TIME LIMITS AFFECT JOBS RUN UNDER NOS, PLEASE SEE WRITEUP{UPGRADE=SRU}.

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DEADLINE FOR THE SEPTEMBER UCC NEWSLETTER IS AUGUST 25.

ALL READERS ARE WELCOME TO SUBMIT ARTICLES FOR PUBLICATION IN THIS NEWSLETTER.

SURPRISE------ THE UCC USER'S MANUAL {A LONG TIME IN PREPARATION} SHOULD BE IN THE BOOKSTORES IN EARLY SEPTEMBER.

UCC newsletter
VOLUME 12 NUMBER 8 AUGUST, 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 Cyber 74: An annual statistical review for fiscal year 1977-1978

	1977-1978	1976-1977	% change
Number of Batch jobs and MIRJE sessions	1,080,435 (1,202,432)	892,595 (1,033,199)	+21.0 (+16.4)
Total Central processor hours inc. DELAY	2,166 (2,711)	1,775 (2,313)	+22.0 (+17.2)
Mass storage transfers (KPR)	2,987,834 (3,801,477)	2,171,060 (2,790,257)	+37.6 (+36.2)
Magnetic tape transfers (KPR)	71,801 (98,944)	64,310 (88,023)	+11.6 (+12.4)
Pages printed, charged from UCC	10,230,017 (11,385,499)	8,862,693 (10,139,220)	+15.4 (+12.3)
Cards punched	4,977,835 (5,427,040)	5,099,521 (5,520,087)	- 2.4 (- 1.7)
Microfilm frames produced	267,734 (3,538,966)	307,887 (2,978,682)	-14.0 (+18.8)
Statos plotting production (feet)	87,317	62,598	+39.5%
Tapes mounted	114,156	102,237	+11.6%
Average file storage (characters)	1,271.2 million	896.6 million	+41.8%
Mean time between failures	30.2 hours	30.2 hours	0%
Available during scheduled hours	97.5 percent	98.6 percent	- 1.1%

(totals in parentheses include staff development, accounting, and maintenance runs)

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Jobs and central processor hours

Again this year, there were substantial increases both in the number of jobs and in the total number of central processor hours used on the Cyber 74. In order to make more resources available to users, UCC staff demands on the Cyber 74 resources remained approximately the same as the previous year.

Mass storage transfer and average file storage

As last year, the highest increase was in disk transfers and in the average total amount of user file storage on the disks. The exponential growth rate in the demand for disk storage has been slowing; over the past five years, we've seen a doubling the first three years (100% increase) and only 50% and 40% in the last two years.

Pages, cards, and plotting

While the demand for cards punched continued its slow decline, the number of pages printed increased 15%; an additional million. The new Statos plotter that was delivered last summer did achieve good contrast and plotted reliably; this is reflected in the 40% growth in total consumption.

Mean time to failure and availability

The Cyber 74 hardware and software have been as stable as last year, but the increased numbers of water cooling, electrical power, and air conditioning problems have meant a longer time to repair when the machine goes down. This is reflected in the decrease in machine availability.

Magnetic tape transfers and mounts

We mounted 12% more tapes last year, but still have not reached the number of mounts recorded during the years when there were no user permanent files. The following table for tape mounts during the past three June months also shows certain trends:

	labeled	not labeled	7-track	9-track	total
June 1976	5351	3565	7264	1652	8916
June 1977	6508	2953	6460	3001	9461
June 1978	8001	3065	5633	5403	11066

Many users are following our recommendation that they use labeled tapes. However, there are always a certain number of tapes generated at other sites that must be unlabeled. 7-track usage is slowly decreasing and 9-track usage has increased to equal that of 7-track. This means that our current configuration of two channels with five 9-track tape units and one channel with five 7-track units seems to be approximately correct for the number of tapes currently mounted.

L. Liddiard, 373-5239

FROM THE ASSISTANT DIRECTOR'S DESK

We are beginning to understand the new features which are arriving with NOS. The most serious potential for confusion for all of us lies in the fact that a few old field length parameters and commands have been given new meanings. Recommendations:

1. Do not use the CM parameter on your job card; your default will be the amount on your LIMITS report for job origin type (Batch or Telex).

2. Before compiling or running your own program, use this command

   RFL,n. (running field length)

   where n is the amount needed to compile or to load and run. Most systems routines will request what is needed. The MNF compiler will request 46000. If you need more to compile or subsequently to load, you must request it with the RFL command.

3. Read WRITEUP(UPGRADE=MEMORY) which is a first draft of an explanation of the new meanings of CM and RFL.

We also want to call your attention to the meaning of Tn on the job card where n specifies time limit per job step, not for the whole job. This may be 2008 seconds by default (see TL= on your LIMITS report)! You can reduce this job step time limit and save yourself from a costly looping run by using a small Tn on your job statement or by using SETTL,n judiciously in your job.

* * *

At the end of the fiscal year, we gather lots of statistics about the way we and you use the Cyber 74. These figures influence our planning. Not all of them are of great and exciting moment, however, a few may interest you.

On another page of this newsletter, Larry Liddiard summarizes our hardware status and actions during the past school year. In a forthcoming newsletter, Andy Mickel will report fully on usage of systems utilities and processors. I thought you might like, this month, to see the figures for usage of 14 of the most popular processors and packages we maintain on the Cyber 74. The following table lists preliminary figures for this group; July 1, 1977 - June 30, 1978:

processor/package	number of loads
MNF,TSF	441,800
COBOL, COBOLX, COBOL5	154,600
SPSS, SPSSONL	109,200
FTN	82,600
BASIC, BASIC$	69,900
SYSTEM 2000	62,200
WRITEUP	50,000
PASCAL	47,700
COMPASS	23,500
OMNITAB	12,300
SNOBOL, SNOBOLC	11,600
IMSL	11,200
EMULATE	10,674
APLUM	8,900

In all, our users made 18,747,000 'calls' from a total of 1,080,000 jobs. This averages to about 2960 jobs per day including Christmas! Remember, I am only reporting here on the Cyber 74.

* * *

Minnesota is joined by MIT, TUCC, Stanford, Yale, Wisconsin, and Dartmouth in supplying computer services to universities and colleges around the United States through membership in EDUNET (the managing office of the educational computing network). The only EDUNET usage of our resources has been on MERITSS. Given the saturated condition of the Cyber 74, this was an unchangeable situation throughout the 77-78 school year. The other schools on the network, however, appear to be supplying research as well as classroom users with unique offerings over the relatively low-cost communication network called TELENET.

In our case, MERITSS has been supplying service to 16 schools, from Harvard and Duke in the East, Calgary to the North, and Texas Tech in the South to McGeorge and Puget Sound on the West Coast. Dr. Burris, who supervises and coordinates the development of the Law and other CAI programs, expects 8-10 more schools to participate in this usage in 78-79. Since the Cyber 74 is loaded and the Cyber 172 is just beginning to feel its oats, we have no plans for offering service on these machines via EDUNET during the coming school year.

* * *

The character set change which will take place soon should not be onerous for the majority of our users.

1. We will generate and interpret 029 card decks for you now (and through February). See the article on page 62 about this.
2. We will change the TT validation on your LIMITS file from TTYD to TTY when we change the character set. You should have no trouble with this.
3. Most processors accept the new character set already. These include COMPASS, MNF, FTN, COBOL and its friends, and UPDATE and APL. Any ALGOL programs which use only the 48 characters that are not changing will be in good shape.
4. Data files consisting of text and programs written in BASIC, SNOBOL, and LISP can be converted by the program CONVERT; see WRITEUP(CONVERT).
5. A new version of WRITEUP(UPGRADE=CHAR) will be available very soon. This will give you more specific information and also will give you advice on converting PASCAL programs.
6. You can now punch 26 in columns 79-80 of your job card. This will mean that your deck will run now and later. If you wish to generate your own 029 card decks now rather than waiting for us to do it, you can punch 29 in columns 79-80 and the deck will run now as well as later at the high speed stations. The 029 decks will be usable on the U1004s as soon as the required software is fully tested. The UT200s and the 200 emulators will continue to use 026 decks for the time being.

T.D. Hodge, 373-4599

CHARACTER SET CHANGES

CARD DECK CONVERSION

We will provide a card deck conversion service from August, 1978 through February of 1979 for those of you who need to convert your card decks from 026 to 029 subset ASCII cards. You will not be charged for this service. However, please note that this service is intended only for decks to be used on our computers and does not include conversion of binary decks. Please see the May 1978 Newsletter article, WRITEUP(UPGRADE=CHAR), and other articles in this issue for further details on the nature of the character set change.

The procedure for the card deck conversion process will be as follows:

1. Users will bring decks to 131 ExpEng or to the User's Room at Lauderdale (see the schedule below). Decks should be securely bound with rubber bands. Decks of 500 or more cards should be submitted in boxes.

2. A 'card deck conversion' slip should be filled out for each deck to be converted. This slip will be available at the I/O counter in 131 ExpEng and at the I/O table at Lauderdale.

3. The completed slip should be attached to the deck and the deck should then be submitted in the tray marked "DECKS FOR CONVERSION."

4. We will punch a converted copy of the decks and will then interpret the copy. Turnaround time is anticipated to be one week or less. If you so request, we will call you when your deck is finished, and you can pick up the original and the copy at either 131 ExpEng or at Lauderdale.

The following schedule will be observed. You may turn in your decks at any time during the period, but priority will be given to the decks belonging to the user numbers scheduled during each week:

Aug 27-Sep 2	AAAAAAA through EQP9999
Sep 3-Sep 9	EQQAAAA through EZZ9999
Sep 10-Sep 16	FAAAAAA through FQM9999
Sep 17-Sep 23	FQNAAAA through fZZ9999
Sep 24-Sep 30	FAAAAAA through GZZ9999
Oct 1-Oct 7	HAAAAAA through HZZ9999
Oct 8-Oct 14	IAAAAAA through LZZ9999
Oct 15-Oct 21	MAAAAAA through QZZ9999
Oct 22-Oct 28	RAAAAAA through XZZ9999
Oct 29-Nov 4	YZZZZZZ through ZIZ9999
Nov 5-Nov 11	ZJAAAAA through ZZZ6399
Nov 12-Nov 18	ZZZ6400 through ZZZ6699
Nov 19-Nov 25	ZZZ6700 through ZZZ9999

Decks received during the remainder of the conversion period (through February 1979) will be processed in the order received. All questions on this procedure should be directed to

J. Larson, 373-7538

MIRJE ACCESS TO CHANGE

"Too many users from same project are on system" is a familiar message to some users who try to login on the Cyber 74 between 8 AM and 6 PM. Right now, users are divided into groups whose members share MIRJE access. Generally, these groups follow departmental lines. The purpose of these groups is to ensure that a particular group cannot dominate the system with its users.

The current method of checking involves many groups, is difficult to administer, and it may not be fair to some groups. Thus, UCC has decided to allow each user number its own access to the system. Each account will be assigned to one of four major groups:

1. Non-University accounts
2. University accounts not funded by UCC
3. University accounts funded by UCC
4. UCC Staff

These groups will be permitted simultaneous use of all the telephone rotaries. The number of terminals allowed to be on the system at one time from each group will be determined by the number of connect time hours used by each group. For example, if the non-University accounts used 10% of the total connect time, they would be allotted 10% of the ports on each telephone rotary. This method of port distribution will mean first-come-first-served within each allocation group. The percentages will be adjusted with changes in the number of timesharing connect hours for each group.

Another important concept related to rotaries is how to determine when a rotary is saturated. Usually, saturation occurs between 8 AM and 6 PM on weekdays (prime time hours). If the number of ports on a rotary is multiplied by the number of prime time hours (10 hours), it will equal the port-hours available. When the number of port-hours used reaches 85% of the port-hours available, we will consider the rotary to be saturated.

When saturation occurs on the Cyber 74, we will:

1. Add ports until the limit of 50 is reached.
2. Transfer usage to the Cyber 172.
3. Reduce staff usage on the system.
4. Consider purchase of new equipment.

When saturation occurs on the Cyber 172, we will:

1. Add ports until the machine's CPU/PPU power is exhausted.
2. Purchase new equipment.

This new checking method will be installed before the start of Fall Quarter and will be in force only during the prime time hours (8 AM - 6 PM weekdays).

J. Fairweather, 373-4877

PRODUCTION USAGE SUMMARIES

	June, 1978	June, 1977
CDC Cyber 74		
Number of Batch jobs and MIRJE sessions	98,183 (108,457)	81,285 (93,671)
Total Central processor hours inc. DELAY	238 (277)	181 (222)
DELAY queue processor hours	78 (81)	-
MIRJE terminal hours	10,077 (11,446)	6,355 (7,994)
Mass storage transfers (KPR)	303,830 (367,332)	191,216 (249,728)
Magnetic tape transfers (KPR)	7,236 (9,843)	6,752 (8,590)
Pages printed, charged from UCC	1,069,646 (1,170,113)	833,337 (954,288)
Cards punched	572,238 (660,516)	444,864 (483,914)
Microfilm frames produced	30,457 (336,846)	39,145 (277,292)
Statos plotting production (feet)	8,788	6,873
Tapes mounted	10,925	9,498
Average file storage (2347M available)	1,638.6 million char	1,188.8 million char
Mean time between failures	67.0 hours	40.0 hours
Available during scheduled hours	99.0 percent	99.3 percent
SUPIO uptime during available hours	96.4 percent	97.5
(totals in parentheses include staff development, accounting, and maintenance runs)		
CDC 6400		
Number of jobs run	107,290	143,352
Central processor hours	177	142
MERITSS terminal hours	14,934	18,655
Number of terminal sessions	29,243	35,446
Maximum number of simultaneous users	113	99
Average file storage	346.5 million char	264.0 million char
Mean time between failures	95.8 hours	94.7 hours
Available during scheduled hours	99.7 percent	99.5 percent

DOWNTIME SUMMARY: July, 1978 (Column 1, Cyber 74 : Column 2, Cyber 172)

	Monday-Friday 0800-1800		other		total	
Total possible scheduled uptime hours	200.0	200.0	289.0	100.0	489.0	300.0
Total downtime hours (see Schedule A)	12.3	7.4	1.1	0.1	13.4	7.5
Total uptime hours	187.7	192.6	287.9	99.9	475.6	292.5
Uptime (percent)	93.9	96.3	99.6	99.9	97.3	97.5
Average downtime per occurrence (minutes)	49.1	26.1	13.0	3.0	40.1	24.8
Mean time between failures (hours)	15.4	13.3	57.8	100.0	27.2	18.8
Subsystem failures						
SUPIO	3	-	8	-	11	-
TELEX	0	1	1	0	1*	1
EXPORT	5	-	3	-	8	-

Schedule A: downtime hours

	Number		Total hours		Average minutes	
(1) Preventive maintenance over-runs	2	2	0.2	0.2	7.0	6.0
(2) Software related problems	6	8	6.1	1.6	60.8	12.1
(3) Hardware related problems	5	2	0.5	0.8	5.4	24.0
(4) Indeterminate software/hardware problems	2	1	0.2	0.1	5.5	3.0
(5) External Problems	5	5	6.4	4.8	76.8	57.2

*TELEX front-end aborted 2 times.

Cyber 74: of the 13.4 hours of downtime this month, 4 failures accounted for 10.1 hours: extensive disk reload (5 hr, 5 min), power failure (3 hr, 41 min), water pressure and air conditioning problems (1 hr, 22 min).

Cyber 172: of the 7.5 hours of downtime this month, 4 failures accounted for 5.0 hours: disk reload (44 min), power failure (2 hr, 49 min), and 2 water pressure/air conditioning problems (1 hr, 25 min).

SUBMISSION SITE USAGE SUMMARY: TELEX EXCLUDED : July, 1978

submitted from	total jobs	%	pages printed	%	cards read	%
Lauderdale	2,954	5.3	337,582	29.9	1,523,121	14.9
ExpEng	7,570	13.5	133,747	20.7	2,599,223	25.4
West Bank	5,341	9.6	86,370	7.6	1,128,532	11.0
6400	1,555	2.8				
SUPIO	38,478	68.8	471,804	41.8	4,983,683	48.7
TOTALS	55,898		1,129,503		10,234,559	

CYBER 172 USERS

GUARANTEED ACCESS PORTS PROPOSED

We are considering guaranteed access ports for users on the Cyber 172 system. The cost of such a port has not yet been determined. Those of you who are interested in having a guaranteed access port should call Rich Franta at 376-3963.

A NEW VERSION OF GENCORD

A new version of GENCORD is available through FUTURE(GENCORD). This version contains minor bug corrections. The index (PRINTI) option has been extended to provide an index format which is program readable for further user modification. GENCORD was also revamped so that it now compiles with either the MNF or FTN Record Manager compiler versions. WRITEUP(GENCORD) brings the GENCORD manual up to date for the future version.

R.L. Hotchkiss, 373-5756

WANT ADS

FOR SALE

2 teletypes, ASR, paper tape, with acoustic couplers. Contact Alan Ek, College of Forestry, 373-0843.

WANTED TO BUY

Users interested in selling (at a reasonable cost) no longer used 844 disk packs please contact John Skelton, Director, UMD Computer Center, UofM-Duluth.

INFORMATION WANTED

Does anyone have information on data bases covering patent records, chemical engineering physical properties, NOAA weather records? Call T. D. Hodge, 373-4599

RETURN TO:

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