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# University Computer Center Newsletter

UNIVERSITY COMPUTER CENTER

UNIVERSITY OF MINNESOTA-TWIN CITIES

MINNEAPOLIS, MINNESOTA 55455

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Deadline for the December issue is  
November 26.

## bulletins

### HOLIDAY HOURS FOR THANKSGIVING

	DOWN	UP
Lauderdale	Thu 22Nov 0445	Sat 24Nov 0800
Exp Eng	Wed 21Nov 2400	Sun 25Nov 1600

Need to see a tentative schedule of UCC short  
courses for the next quarter? Use

WRITEUP (CLASSES= FUTURE)

**SPECIAL ISSUE ON  
MICROCOMPUTERS  
COMING SOON  
FEATURES THE APPLE II**

## UCC newsletter

Volume 13                      Number 11                      November, 1979

Director: Peter C. Patton  
Editor : Amy Koepke

Comments about the content of this newsletter, or  
suggestions for changes may be directed to the  
editor, 235a Experimental Engineering, or call  
612/373-7744.

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## **about user meetings**

Users tell us that they are generally satisfied with our services. Our consultants and HELP-line are busy answering users' questions. Our special consulting services have been well received. All these services and information in this newsletter supplant some functions of the quarterly general users meeting; consequently, such a regular meeting no longer appears to serve its original purpose.

To replace the regular user meetings, we will hold small meetings on selected topics as the need arises. We have already received suggestions for specific topics, and will always be happy to hear from you about any concern you feel would merit being developed as a meeting topic.

T.D. Hodge, 373-4599

## **systems report**

!!! NO MAJOR CHANGES FOR TWO YEARS !!!

As our regular readers are aware, we periodically summarize all the hardware and software changes that we foresee for the future. In the past, we've done this in our October back-to-school issue. The report that follows, although a month late, gives you a preview of changes for this fiscal year (July 1979 through July 1980).

### **H A R D W A R E**

**Central Memory:** An additional 65K of memory will be added to the Cyber 172 in December. This should help reduce throughput time, and will provide 400K for batch jobs during DELAY time.

**Mass Storage:** To lower user costs and allow for expansion, 4.2G (billion) characters of storage will be added to the Cyber 74/172 this year; 1.4G in September, 1.4G in December, and 1.4G in July 1980. This means that we will have 9.2 billion characters of storage available by next July.

**Interactive Ports:** we will add more 110-300 baud ports to the Cyber 172: thirty in December or January and twelve in April. This means we will have 110 ports by July 1980.

We will also add more 1200 baud ports: we added four in September, and will add twelve more this year. We will have twenty-eight 1200 baud ports by July 1980. The demand for this service has grown rapidly.

**New RJE Stations:** two stations will be added in January and one in June; these new stations will have printers with upper- and lower-case capabilities.

**Magnetic Tape Units:** Four 679 units were installed in September and one more will be installed in July 1980. These 9-track units permit reading and writing at 6250 bpi. Three 677 7-track tape units were installed in September to replace the old 607 7-track units. The 677s

are more reliable than the 607s. One 677 will be removed in July 1980 as we slowly phase out our 7-track service. We removed seven 607 7-track units in September; the last two will disappear in December. These units are very old, and are not supported by NOS 1.3 software.

### **S O F T W A R E**

Many users will remember that we made major operating system upgrades in August 1975, 1976, and 1978. August 1979 followed the pattern since we upgraded the system to Release 4 (NOS 1.3). These upgrades always cause disruptions, but most of us put up with the pain since we know that old operating systems are often not efficient, and frequently not compatible with new hardware and with new software releases. Our Systems Group usually spends about eight months preparing for these upgrades. You will be pleased to hear that we plan no change for August 1980; although we will be installing certain corrections and features introduced in NOS release 5. In general, software changes will be limited to standardization, and investigation of possible major changes for August 1981.

To be specific, we will install the FTN5 compiler, will do additional refining of M77, will install the latest Pascal and Pascal-based systems, and will be working with the ASCII standard character set as part of our standardization projects.

We will be working on software to improve our ability to do text processing; part of this will be the gradual installation of upper/lower case printers at our most heavily used RJE sites.

We will be investigating a communications network involving the Cybers and other University systems.

L. Liddiard, 373-5239

## **magnetic tapes**

We recently installed four 679-6 9-track tape drives and three 677 7-track drives. The new 9-track drives let us read and write at 6250 bpi. The 677s replace our obsolete 607 drives.

These changes have enhanced our magnetic tape service, but have also brought some problems. The new hardware has caused some compatibility problems between various types of drives. A few 9-track tapes that were written on the 669-4 units get read errors on the new 679-6 tape units. This problem has affected only a small number of 9-track tapes written at 1600 bpi, and usually appears as a large number of ON THE FLY errors in the job's dayfile. In some cases this leads to an unrecovered error. This problem can be avoided by requesting that the tape be mounted on a 669-4 tape drive. A better solution is to simply re-write the data on the tape.

Similarly, some 7-track tapes written on the 607 units get read errors on the new 677-3 units. This appears as a SINGLE FRAME ERROR, suggesting that the new tape drives are less tolerant of variations in the spacing of frames on the tape.

This problem is a bit more serious than the one with 9-track tapes because we no longer have any of the old 607 drives available on the Cyber 74/172. However, two 607s are still connected to our MERITSS system and can be used to copy these tapes. If you are getting SINGLE FRAME ERRORS or other errors on 7-track tapes that previously read without errors, call me and I will see if the tape can be read without errors on the 607 units and, if so, I will make a readable copy of the data. These 607 units will be available only until the middle of December, so you should test your 7-track tapes, especially if they contain important data.

We have seen an intermittent problem with the tape software. This problem appears when opening new sections of a multi-file tape (with the QN=9999 parameter on the LABEL control statement) or when accessing subsequent reels in a multi-reel tape. The problem appears as an ERASE LIMIT and the job aborts. Subsequent attempts of the same operation will usually succeed.

If you encounter compatibility problems with a tape, if you have questions about tapes, or if you encounter this ERASE LIMIT problem, please call  
J. Drummond, 376-5603

## **DELAY jobs**

If you are interested in reducing your costs, you should investigate UCC's DELAY queue processing on the Cyber 74/172. We now have two reduced rates for delayed job processing: low rate and large job. A low rate job is one that runs late at night or on weekends:

Weekdays: 11:00 PM through 4:00 AM the next morning (5 hours each day)  
Weekends: 11:00 PM Friday through 5:00 PM Saturday (18 hours)  
4:00 PM Sunday through 1:00 AM Monday (9 hours)

A job is charged as a low rate delayed job when it is:

1. submitted during DELAY hours,
2. submitted with PO (zero) on the job statement,
3. an interactive session started during these hours.

However, a job that starts during normal hours and continues execution during DELAY hours will be charged the standard rate. For example, if you log-on at 10:30 PM Wednesday evening and continue working through midnight, all your costs will be charged at the normal rate.

Here is a job statement set up for low rate processing:

```
LOWJ(T500,PO)           {Note the PO (zero)}
```

You can use a job statement similar to this, set up a job, submit it anytime during the day, and be assured of the low rate, since it will be held in the DELAY queue until the evening hours.

The charge for low rate delayed jobs is \$0.11/SRU. Compare this to the standard charge of \$0.16/SRU and you will see that low rate processing, if you can wait for results, is economical.

## **LARGE JOBS**

If you have very large jobs that do not request tapes or removable packs, and you do not need guaranteed turnaround, you may benefit from UCC's large job delayed rate. The tradeoff for this special rate is, of course, limited service. In addition to the limits listed above (no tapes, no mountable packs, no guaranteed turnaround), we add a base charge of 100 SRUs to these jobs. This base charge (100 SRUs) for large jobs means that the low rate is cheaper than the large job rate for jobs using up to 84 SRUs.

Also, these jobs may be halted by the operator at the end of operations. The operators will "checkpoint" large jobs and "restart" them during the next day's DELAY period. (Later articles and WRITEUPS will explain checkpoint and restart.)

You request large job DELAY processing with the PL (one) parameter on the job statement. For example:

```
LRGJ(T700,PL)
```

The PL specification for DELAY jobs will not be available until December. (PO is available now.) Note that this PL specification is the half price for number crunchers that we promised you earlier this year; a job that uses over 1000 SRUs will be charged less than 5.5 cents per SRU if it runs with PL specified on the job statement.

When you run large jobs, always keep in mind that jobs submitted on Friday will have a large block of DELAY time available (18 hours). For further information on low rate and large job DELAY processing, see WRITEUP(Queue) and WRITEUP(DELAY).  
T. Hoffmann, 376-5262

## **mag tape charges**

Many users noticed an increase in the charges for magnetic tape usage when NOS Release 4 was installed. The increase in charges was due to the fact that tape transfers needed to position files are now being accounted and charged. In the previous release, NOS tape transfers for positioning were not charged due to a bug in CDC software.

Under the SRU formula, data transfer to and from magnetic tape is charged by the amount transferred multiplied by the weighting factor. These weighting factors vary depending on the amount of work that the computer system must do. For example, the weighting factor to read a long (L) tape on a 9-track unit is greater than the weighting factor for reading a standard length tape on a 9-track unit. This is because the long record tape needs 2 peripheral processing units (PPUs) in order to read the tape successfully.

The weighting factor for positioning in both the NOS Release 3 system and the NOS Release 4 system was 2. However, the old system failed to multiply transfers times the positioning multiplier to come out with the true charge. Therefore, we have been undercharging for positioning transfers until the installation of Release 4. In order to minimize the financial impact on users (since we were charging only a very small sum previously) we have changed the multiplier factor for tape positioning (ITPO in the table below) from 2 to 1. This effectively cuts the charge for positioning by 50%. Users will, however, continue to notice an increase in magnetic tape transfer charges for positioning from those seen under NOS Release 3.

CURRENT WEIGHTING FACTORS

name	weight	function
ITRW	4	read/write (7-track)
ITNT	3	read/write (9-track)
ITRL	5	read 7-track L tape
ITR9	4	read 9-track L tape
ITPO	1	position
ITCL	1	open/close
ITWL	8	write 7-track L tape
ITW9	6	write 9-track L tape

S.P. Nachtsheim, 373-7878

**stat consulting**

UCC's statistical consultants will help you debug programs and the jobs you have set up for the statistical packages. Our consultants will not help you with statistical analysis, nor will they write programs for you.

If you need general advice on the design and analysis of statistical studies, you may go to the Statistical Clinic on the St. Paul Campus. The clinic is staffed by graduate students in the School of Statistics, and operates on an open-door basis, although appointments can be made by calling 376-3845.

For researchers and students with statistical questions, the Clinic provides initial contact with the School of Statistics.

For further information about the Statistical Clinic, call 376-8024 or 376-3920.

The fall quarter hours for the clinic are:

- Mon: 8 AM - 12 Noon and 1 PM - 5 PM
- Tue: 8 AM - 1 PM and 2 PM - 5 PM
- Wed: 8 AM - 5 PM
- Thu: 8 AM - 3 PM
- Fri: 8 AM - 12 Noon and 2 PM - 4 PM

S.P. Yen, 373-4886

**applications packages**

We have acquired several new applications packages. Three of these, KYST-2A, SINDSCAL, and HICLUS are related multi-dimensional scaling programs which we obtained from Bell Labs. They are control card callable:

- KYST2A.
- SINDSCL.
- HICLUS.

The fourth program is LISREL, a program for analysis of linear structural relationships by maximum likelihood. This program is control card callable; use the statement:

LISREL.

If you want information about any of these routines, or want to see the documentation available, please call

S.P. Yen, 373-4886

**student chapter**

The American Society for Information Science, which held its annual meeting in Minneapolis in October, 1979, has chartered a student chapter at the University of Minnesota.

Students interested in the problems of information science, information transfer, or information management are welcome to attend the meetings of the new chapter. Please call Robin Crickman (373-5992 or 373-3100) for more information.

**documentation**

NEW PUBLICATIONS:

User Manual Supplement: Magnetic Tape User's Guide, Edition 2 (\$4.15, bookstores)

XEDIT 3.1 Reference Summary (free, 140 ExpEng)

Keypunch Information Sheet (free, 140 ExpEng)

System 2000 User Aids: S2KEST, S2KNPUT, CLEAN, BUILDLS

NEW AND REVISED WRITEUPS:

APPLE	ARCHIVE	AROUTE	ASEND
BLOCK	CATLSYS	CLASSES	CONSKED
CONSULT	COPYCH	COPYMF	COPYU
DELAY	EXAMINE	FORSUBS	KCL
MEMORY	MFEBR	MTNOTE	PERMITS
PTRFORT	PTRMISC	PTRM77	PTRS2K
QUEUE	REBLOCK	RELOAD	RESTORE
SEND	SORTOPL	SYSLIB	TAPEUSE
UPWRITE			

# SHORT COURSES

## Short Courses: Fall Quarter

XEDIT (BASICS).....	2:15-4:00PM, NOV 5	(M), MECHE 18, PG
XEDIT (COMPLEX COMMANDS).....	2:15-4:00PM, NOV 7	(W), MECHE 18, PG
XEDIT (NEW FEATURES).....	2:15-4:00PM, NOV 9	(F), MECHE 18, PG
SYSTEM 2000/RW.....	2:15-4:00PM, NOV 5- 9	(MWF), SMITH 315, SPN
SPSS (PROCEDURES).....	2:15-3:30PM, NOV 6- 8	(TTH), SMITH 315, BH
SIR.....	3:15-5:00PM, NOV 6-15	(TTH), VH 113, JCC
PASCAL.....	3:15-5:00PM, NOV 12-30	(MWF), AERO 319, LF
ADVANCED SYSTEM 2000.....	2:15-4:00PM, NOV 12-16	(MWF), SMITH 315, SPN
MINITAB.....	2:15-3:30PM, NOV 12-14	(MW), MECHE 18, BH
SPSS (ON-LINE).....	2:15-3:30PM, NOV 16	(F), MECHE 18, BH
INTRODUCTION TO MICROS.....	3:15-5:00PM, NOV 12-13	(MT), FORH 115, GG
USING MICROS (TERAK).....	3:15-5:00PM, NOV 14-15	(WTH), FORH 115, GG
USING MICROS (APPLEII).....	3:15-5:00PM, NOV 19-20	(MT), FORH 115, BW
DMS - 170.....	3:15-5:00PM, NOV 19-21	(MTW), VH 113, JCC
APEX/MPOS.....	3:15-5:00PM, NOV 27-29	(TTH), AERO 319, JCC

## Tentative UCC Short Course Schedule for Winter 1980

Computing: What is it?.....	3:15-5:00PM, Jan 14-17	(mtwth), LF/SG
Introduction to System 2000..	3:15-5:00PM, Jan 14-25	(mwf), JCC
Intro to Record Manager.....	3:15-5:00PM, Jan 14	(m), SAR
Record Manager(BAM).....	3:15-5:00PM, Jan 16-18	(wf), SAR
Introduction to UCC.....	3:15-5:00PM, Jan 18	(f), RTF
NOS (system configuration)..	3:15-5:00PM, Jan 21	(m), RTF
NOS (files/jobs).....	3:15-5:00PM, Jan 22-23	(tw), RTF
NOS (permanent files).....	3:15-5:00PM, Jan 24	(th), RTF
NOS (program execution).....	3:15-5:00PM, Jan 25	(f), RTF
NOS (tapes).....	3:15-5:00PM, Jan 28	(m), RTF
NOS (misc statements).....	3:15-5:00PM, Jan 30	(w), RTF
NOS (control language).....	3:15-5:00PM, Feb 1	(f), RTF
Record Manager(AAM).....	3:15-5:00PM, Jan 21-25	(mwf), SAR
Computing: What is it?.....	7:15-9:00PM, Jan 21-30	(mw), LF/SG
COBOL.....	6:15-8:00PM, Jan 28-Feb 25	(mw), DR
XEDIT.....	3:15-5:00PM, Jan 28-Feb 1	(mwf), PG
Sort/Merge.....	3:15-5:00PM, Jan 28-Feb 1	(mwf), SAR
Introduction to Timesharing:	6:15-8:00PM, Jan 29-31	(tth), RTF
Introduction to Batch.....	2:15-4:00PM, Jan 29	(t), MB
COMPASS/CP timing, techniques:	3:15-5:00PM, Jan 29-Feb 14	(tth), LAL
LISP.....	3:15-5:00PM, Feb 4-15	(mwf), TT
Intermediate FORTRAN.....	3:15-5:00PM, Feb 4-22	(mwf), RTF
Introduction to Programming:	3:15-5:00PM, Feb 4-22	(mwf), RM
FORM.....	3:15-5:00PM, Feb 4-8	(mwf), SAR
SPSS (SPSS basics).....	3:15-4:30PM, Feb 4	(m), BH
SPSS (data manipulation).....	3:15-4:30PM, Feb 5	(t), BH
SPSS (SPSS files).....	3:15-4:30PM, Feb 6	(w), BH
SPSS (workshop).....	3:15-4:30PM, Feb 8	(f), BH
BMDP.....	3:15-4:30PM, Feb 4-8	(mwf), SPY
System 2000 User Aids.....	3:15-5:00PM, Feb 5-7	(tth), JCC
Tapes.....	3:15-5:00PM, Feb 5-7	(tth), JJD
Beginning FORTRAN.....	6:15-8:00PM, Feb 5-28	(tth), RTF
System 2000/RW.....	3:15-5:00PM, Feb 11-15	(mwf), JCC
Graphing Techniques.....	7:30-9:30PM, Feb 11-17	(mtw), KMM
SPSS (procedures).....	3:15-4:30PM, Feb 12-14	(tth), BH
Text Formatting.....	3:15-5:00PM, Feb 19-21	(tth), SG
COMPASS I/O.....	3:15-5:00PM, Feb 19-Mar 6	(tth), KCM
APEX/MPOS.....	3:15-5:00PM, Feb 20-22	(wf), JCC
Advanced System 2000.....	3:15-5:00PM, Feb 25-29	(mwf), SPN
Programming Style.....	3:15-5:00PM, Feb 25-29	(mwf), RTF
MINITAB.....	3:15-4:30PM, Feb 25-27	(mw), BH
SPSS (On-Line).....	3:15-4:30PM, Feb 29	(f), BH
DMS - 170.....	3:15-5:00PM, Feb 25-26	(mt), JCC
Query/Update.....	3:15-5:00PM, Feb 27-28	(wth), JCC
Image Processing.....	7:30-9:30PM, Feb 25-27	(mtw), KMM
System 2000/PLI.....	3:15-5:00PM, Mar 3-7	(mwf), SPN
Introduction to Micros.....	3:15-5:00PM, Mar 3-4	(mt), GG
Using Micros (TERAK).....	3:15-5:00PM, Mar 5-6	(wth), GG
SIR.....	3:15-5:00PM, Mar 4-13	(tth), JCC
Using Micros (AppleII).....	3:15-5:00PM, Mar 10-11	(mt), BW

# STATISTICS

## \*\*\*PRODUCTION USAGE SUMMARIES: Cyber 74/172

	September, 1979	September, 1978
System resource units (SRU)	828,872 (1,115,813)	1,008,086 (1,372,877)
Batch jobs and MIRJE sessions	78,260 ( 88,522)	76,427 ( 88,197)
Central processor hours inc. DELAY	121/117 ( 134/207)	164/81 ( 190/178)
DELAY queue processor hours	37/23 ( 38/35 )	53/1 ( 55/11 )
MIRJE terminal hours	11,993 ( 13,995)	6,329 ( 6,833)
Mass storage transfers (KPR)	297,577 ( 437,797)	324,391 ( 429,450)
Magnetic tape transfers (KPR)	9,219 ( 12,540)	6,001 ( 10,646)
Pages printed, charged from UCC	624,497 ( 732,469)	801,582 ( 928,482)
Cards punched	295,256 ( 308,096)	502,660 ( 711,017)
Microfilm frames produced	31,629 ( 370,588)	36,470 ( 362,073)
Number of terminal sessions	27,990 (estimated)	
Status plotting production (feet)	6,528	6,992
Tapes mounted	11,027	11,392
Average file storage (char)	2,302.7 million	1,812.5 million
Mean time between failures	27.2/37.7 hours	12.7/25.6 hours
Available during scheduled hours	98.1/97.6 percent	98.4/98.6 percent

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

## \*\*\*DOWNTIME SUMMARY: September, 1979 (Column 1, Cyber 74 : Column 2, Cyber 172)

	0800-1800 M-F		other		total	
Total possible scheduled uptime hours	230.0	230.0	314.0	314.0	544.0	544.0
Total downtime hours (see Schedule A)	2.0	1.4	2.6	1.7	4.6	3.1
Total uptime hours	228.0	228.6	311.4	312.3	539.4	540.9
Uptime (percent)	99.1	99.4	99.2	99.5	99.2	99.4
Average downtime per occurrence (min)	12.0	17.2	38.3	34.3	19.6	23.6
Mean time between failures (hours)	23.0	46.0	78.5	104.7	38.9	68.0
Subsystem failures						
SUPIO	6	-	1	-	7	-
TELEX	1	1	0	0	1	1
EXPORT	1	-	0	-	1	-

### Schedule A: downtime hours

	Number		Total hours		Average minutes	
(1) Preventive maintenance over-runs	1	0	0.2	0.0	10.0	0.0
(2) Software related problems	1	2	0.1	0.3	2.0	9.0
(3) Hardware related problems	8	2	4.0	2.5	30.1	73.5
(4) Indeterminate problems	1	2	0.1	0.2	5.0	6.5
(5) External Problems	2	2	0.2	0.2	7.0	5.5

## \*\*\*PRODUCTION USAGE SUMMARIES: Cyber 170-720 (MERITSS)

	September, 1979	September, 1978
Number of jobs run	86,419	84,915
Central processor hours	148.7	75
MERITSS terminal hours	9,857	8,960
Number of terminal sessions	22,633	22,395
Maximum number of simultaneous users	95	75
Average file storage (char)	364.9 million	350.7 million
Mean time between failures	32.0 hours	231.1 hours
Available during scheduled hours	99.7 percent	99.9 percent



TELEPHONE NUMBERS

Accounting .....	373-4548, 373-2521	Information, Lauderdale .....	373-4912
Computer-Aided Instruction .....	376-2975	Information, SICL .....	373-9751
Computer Hours (recorded message) .....	373-1798	Information Systems .....	373-7878
Computer Cupboard .....	373-4877	Instructional Labs .....	373-5754
Consulting		Job Status, ExpEng (recorded message) ....	373-4994
HELP-line .....	376-5592	Lauderdale Operations .....	373-4920
9 AM - 5 PM, Monday - Friday		Lauderdale Services .....	373-7538
Business Data Products .....	376-1761	Lauderdale Users' Room .....	373-4921
10-11 AM and 1-2 PM, Monday - Friday		MECC, University .....	373-4573
Statistics Packages .....	376-5062	Microcomputers .....	373-7745
1-2 PM, Monday - Friday		Microfilm Operator .....	373-4995
System 2000 .....	376-1761	Newsletter Subscription .....	373-7744
10-11 AM and 1-2 PM, Monday - Friday		Permanent File Restoration .....	376-5605
Contract Programming .....	376-1764	Professional Services Division (PSD) .....	376-1764
Data Base Applications .....	373-7878	Project Assistance .....	376-1764
Educational Services .....	376-3963	Program Librarian .....	376-1636
EDUNET Interface .....	373-7745	Programming Languages .....	376-7290
Equipment Purchase or Lease .....	373-4877	Reference Room .....	373-7744
Experimental Engineering I/O .....	373-4596	Remote Batch (RJE) Services .....	373-5754
Field Engineering .....	376-7067	Short Courses .....	376-1637
Graphics Software .....	376-1636	Shuttle Bus Service .....	376-3068
HELP-line .....	376-5592	Tape Librarian and EBR Operator .....	373-4995
9 AM - 5 PM, Monday - Friday		Technical Writing .....	373-2522
HOURS-line (recorded message) .....	373-1798	User Numbers	
Information, Experimental Engineering ....	373-4360	Instructional Batch .....	373-2521
		Instructional Timesharing .....	373-7745
		Research Batch .....	373-2521
		Research Timesharing .....	373-2521
		User Services .....	373-4599

RETURN TO:

User Services  
 University Computer Center  
 227 Experimental Engineering  
 University of Minnesota  
 208 Union Street SE  
 Minneapolis, Minnesota 55455