University Computer Center Newsletter

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Contents

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Editor : Naomi Miner

Comments about the content of this newsletter, or suggestions for changes may be directed to the editor, 235a Experimental Engineering, or call 612/376-4668.

VAX open for business!

Our new DEC VAX-11/780 is available for use, and we are offering computing services in the following areas:

> general computing using the DEC VMS FORTRAN, Pascal, and COBOL languages, statistical packages, data base management systems, and the UNIX system with the C language and other UNIX features;
>
> computer graphics using software for image processing, cartography, image enhancement, chart making, animation, computer-aided design, geometric modelling, commercial and fine art, 3-D surface display, and general purpose plotting needs;
>
> text processing using text editors, text formatters, and several types of output devices to produce practically any kind of document, from rough drafts to letters to books.

The VAX is located in Shepherd Labs and can be accessed through either a 300 or 1200 baud interactive terminal. For up-to-date and detailed information on the new VAX and its associated services, read the VAX writeup on either the Cyber 74 or 730; use the control statement WRITEUP(VAX).

access

To use the new VAX, you must have a VAX user number. To apply for a VAX user number, call or see our account clerk (235c ExpEng, 373-4548), just as you would to obtain a Cyber number.

The VAX is accessible through the VAX interactive system. Although we currently have no public terminals, we do have 8 telephone communication lines into the VAX: five at 300 baud (call 376-9770 through 376-9774), and three at 1200 baud (call 376-9775 through 376-9777). These are temporary telephone numbers since we will upgrade the eight lines to 16 300/1200 baud switchable lines in the near future. Read this Newsletter and check WRITEUP(VAX) for announcements. The writeup also describes the log-on, log-off procedure.

The VAX is available from 8:00AM to 5:00PM, Monday through Friday (down from 6:00AM to 8:00AM) with an operator in attendance. The VAX is up, but unattended, between 5:00PM and 6:00AM, and all day Saturday and Sunday. You can pick up printed output at Shepherd Labs, Monday through Friday, between 8:00AM and 5:00PM only. Normal nine-track magnetic tape service is available, but if you have any special tape requirements, call the HELP-line, 376-5592, for assistance.

documentation

The DEC manuals are very good. We suggest that you start with the DEC VAX/VMS Primer and WRITEUP(VAX), with its printed counterpart, UCC Brief: VAX Services. The Primer is available on a check-out basis from the Reference Room, 235a ExpEng, and the Brief is in the user room, 140 ExpEng. Other relevant manuals are in our Reference Room. Stop in and ask for assistance.

Manuals for all the software have been ordered and will be on sale at our Computer Store, 211 ExpEng, and for reference use in 140 ExpEng and in the Reference Room. Local features of certain types of graphics software will be explained in WRITEUP(VAX) and in appropriate Briefs.

consulting

If you need help using the VAX or designing an application for it, we have several sources of help:

> we provide general consulting in 140 ExpEng and telephone consulting through the HELP-line (376-5592) for off-site users;
>
> the VMS system itself has an on-line HELP utility; simply type HELP and you will be prompted for more information. The UNIX system we are running under VMS also has an on-line HELP facility. There are numerous writeups on the Cybers and we will be expanding the VMS HELP facility to provide some of the same features as those of WRITEUP;
>
> we will offer short courses this fall, covering VAX orientation, graphics, text processing, general processing, and other relevant topics. We will announce the classes in this Newsletter and in WRITEUP(CLASSES);
>
> the staff at Shepherd Labs is available to consult on computer applicatons; the Professional Services Division does programming on a contract basis, 376-1764.

M. C. Boyd, 373-2522

holiday hours

	Lauderdale	ExpEng
DOWN	0100 MONDAY,SEPT.7	2400 SUNDAY,SEPT.6
UP	1800 MONDAY,SEPT.7	0800 TUESDAY,SEPT.8

SIR seminar

A SIR 2.0 seminar will be given by Professor Gary D. Anderson on August 26, 27 and 28, 1981 at the University of Minnesota in Health Sciences Unit A. If you are interested in this seminar, write or phone Mr. Anderson at

Box 1404
Evanston, Illinois 60204
phone 312-475-8332

or phone (Ontario, Canada)
519-647-2843

Cray to arrive

We are pleased to report that Cray Research Corporation has won the bid for a Class VI "supercomputer" for our Center. The Cray 1-b is slated for installation on September 28, 1981.

We are adding an extension to our building at Lauderdale to house the water cooling and power equipment necessary for the Cray. In the meantime, we are working on the documentation and consulting services for the new machine, and we are scheduling software conversion, and planning for other services.

Those of you who use significant amounts of computer time for your research will be contacted personally about the advantages of the Cray. We want to find out what kind and level of service you need; we will then try to provide that, consistent with our need to keep research use at our Center self-supporting. We welcome all inquiries.

T.D. Hodge, 373-4599

rate changes

On July 1, we lowered the monthly rate for a double density, dedicated disk drive (with pack and weekly back-up dump) from $1900 to $1600. For single density, the cost was lowered from $1425 to $1200 per month.

Accounting for special forms jobs, which had been done partly by the accounting system and partly by hand, as of July 1 is now done completely by the system. Microfiche and Xerox 9700 jobs are still accounted by hand.

On or about September 15, a commercial rate of $.03/KSH for permanent file mass storage usage will be introduced. It will be charged to those users who now pay commercial SRU and connect time rates. It will be introduced at the same time that the shared file concept disappears because of hardware reconfiguration.

As of August 1, the prices of magnetic tapes from our Computer Store are:

600'	$14.00
1200'	$17.00
2400'	$21.00

J. Foster, 373-4548

text processing

We receive many inquiries regarding our text processing services. This article attempts to clarify our position in regard to text processing and describes the progress we are making toward providing a comprehensive service.

There are two major aspects of manipulating or processing textual information using computers: word processing and text processing. At the University of Minnesota, we accomplish text processing using special programs on general-purpose computer systems. Our Center serves such needs with text editors and text formatters for those of you using our computer systems, whether the Cybers, the VAX, or microcomputers. Word processing is done on highly specialized computers whose programs are designed to fill the needs of an office environment. If you are interested in such commercial office word processors, you should call Julie Douglas of the Technical Services Division of University Support Services, 376-2767.

A committee at our Center has evaluated office word processors on the market today. We judged each system for ease of use, for range of capability and, more importantly, for its ability to communicate as an intelligent terminal with our computer systems. We will soon announce the word processors for which we will support communication facilities.

We are developing and expanding the text processing services we offer. We are working on enhancements to PROSE, our primary text formatter. We plan to have PROSE available on all systems, from the Cybers to microcomputers. This fall, we expect to test TEX, a sophisticated formatter for mathematical and technical text, on the Cybers. In addition, we will install TEX on the Image Processing Center's (IPC) VAX. The IPC VAX will supply a broad range of text processing software, including the VMS and UNIX editors and formatters. As our Center's central text processing computer system the VAX will be connected to a variety of output devices, from line printers to phototypesetters.

As usual, we are interested in hearing about products and features that we should consider for any of the systems that we support. We are always glad to hear from you.

T.D. Hodge, 373-4599
R.A. Holoien, 376-2943
M.D. Collins, 376-8806

position vacant

An analyst/programmer position is currently available with the CAI Systems Group. Two years programming experience and knowledge of and experience in Pascal and FORTRAN programming is required. Experience in programming interactive applications and in programming small computers is necessary.

The person hired for this position will be responsible for writing, debugging, documenting, and maintaining CAI programs on the Apple, Terak, and University of Minnesota NOS systems.

For more information, call

E. Schleske, 376-2975

NOS upgrade

We are tentatively planning to convert all three Cyber systems to the next release of the operating system, NOS 1.4-543, on September 27, 1981. You should see very little change when the operating switch is made because most of the differences are improvements in stability, reliability, and performance. We expect NOS 1.4 to be very reliable since it has been in use at other sites (including MECC, Health Sciences Computer Services, and University Computer Services at Duluth) for over two years. This change will bring us up to the same level as most other sites running NOS and the same level as the current CDC manuals.

NOS 1.4 will provide these new features:

1. The line printers at Lauderdale will be able to print 8-bit ASCII print files.
2. The CATLIST report will be greatly improved. The direct access and indirect access files will be listed separately. CATLIST will give a summary of direct access and indirect access file total storage and file counts. CATLIST will also allow the specification of a subset of files. For example,
   CATLIST(FN=ABC***)
   will list all files starting with ABC.
3. REWIND(*), UNLOAD(*), and RETURN(*) will rewind, unload, or return all local files.
4. The exchange package dumps, which now print on the interactive terminal when a program which does not have its own post mortem dump or error processing aborts, will instead be written to a local file.

More information on the operating system conversion will be available in the system notes WRITEUP(NOTE) and other writeups as information becomes available.

D. W. Mears, 373-1627

for sale

One tab card cabinet in good condition. This cabinet is for sale for $50 and buyer must assume responsibility for freight. Manufacturer is Art Metal. Cabinet has 22 drawers. For additional information, call

R. Fleagle, 376-5263

One IBM System 32 business computer, with printer and alphanumeric keyboard. Interested? Call

S. Henderson, 376-4774

FORTRAN compilers

FETCH(MNF) with FT3LIB has steadily decreased in use to less than 100 requests last year, with no requests in June. Therefore, we plan to take the FETCH version of MNF off the system at the end of Fall Quarter 1981. If this would inconvenience anyone, please call for conversion advice.

We will add to the system a FUTURE M77 that has most of the known bugs corrected. It uses PMD rather than MANTRAP. This version will become the current version for Fall Quarter 1981, so test any critical programs soon.

As we move towards the latest version of NOS, an M77 version that can use CDCIO with its "weak" external calls, PUT$Z rather than PUT.Z, will be put on the system as a FETCH version. Watch SYSNOTEs for the exact date.

L. A. Liddiard, 373-5239

suggestion box

Please do not run long jobs with very large input decks and/or large output on small machines. This causes very long delays for people with short class jobs, which is what I understand these machines are for. I intend to keep on mentioning this situation whenever I observe it.

M.R. 7/81

You were not available, so I must assume that you were talking about the RJE terminals in 130 ExpEng. Yes, we agree, it is not correct to run long input or output jobs while others are waiting to use the equipment. At this time, however, we feel that system-enforced limits would cause more trouble than the present system. If complaints persist, we may have to reevaluate our position.

R. Franta, 376-3963

I am almost willing to bet that someone, either in UCC or a user, has developed a way to take a list of books and articles and use a report generator to turn all items on the list into a bibliography (Modern Language Association format) and selected items into footnotes (also MLA format).

D.R. 6/81

Unfortunately, we do not at present have a bibliography manipulation package. We would be most interested if a reader has a program or procedure that will handle bibliographic entries. Please call

V. Walsh, 373-5780

CPU rates, or is the price right?

At times, most of us have wished for our own computer system tucked away in a corner, allowing unlimited computing whenever desired. Some current micro and certainly many future microcomputer systems will allow us some of this freedom. But with such freedom go the responsibilities of upgrading the system, and thoroughly educating oneself in the day-to-day operation and maintenance of such a system. These additional duties go by the name of overhead or surcharge on the basic cost and housing of a computer system.

A computer system is not solely the processor, software and floor space. Documentation, training courses, consulting, billing, records management, communications systems, permanent files, magnetic tape storage, requests involving operator intervention, and supplies must also be considered. Traditionally, many of the charges for these ancillary functions were bundled into the central processor (CP) rates, but many of you have requested that charges for many of these functions be made on an individual basis. We have been responding to this desire and have tried to make separate, realistic charges in the communications and operational areas. These have allowed the CP rate to stay constant for prime time processing, and to decrease for DELAY and NOFRILL job submissions.

Suppose that we examine the basic cost per hour for our three large computer systems: the VAX-11/780, the Cyber 730, and the Cray-1. To simplify calculations for this article, each hardware system will have midrange memory and have the least expensive amount of mass storage needed to hold the system. For software, only an operating system and FORTRAN will be supplied. To house the computer the formula

200 sq ft * $50/sq ft * SQRT(CP power)

will give an annual estimated cost for floor space and power. Finally, where annual lease rates were not provided by the manufacturer, we divided the purchase price by 3.5 to achieve a yearly lease rate. This denominator was derived from examining manufacturer's ratios of purchase price to average yearly lease. (Some manufacturers use even smaller divisors in this era of large interest rates.) Finally, these calculations were done with 1980-81 figures and the additional 10 to 15% increases in hardware, software, and maintenance costs are not included.

If we divide the preliminary hourly rates by the corresponding relative CP powers, we obtain $60/unit of relative power for the VAX and the CRAY versus $146 on the Cyber 170-730. Indeed, if somehow we could project 2000 hours of use per year on the Cray, then the preliminary Cray rate could be halved. The VAX and Cray rates are much lower than those for the Cyber 170-730 because the CP rate does not include as many charges for other services. Since software packages and consulting for the VAX cost as much as for the Cyber 170-730, software usage pricing will be initiated on the VAX system. In addition, if we compare the VAX and the Cyber 170 for interactive service, note that 16 interactive users of 9600 baud service on the VAX require 50% of the CP. This means that VAX access may have to be priced higher than Cyber access.

In summary, we are continuing to move in the direction of unbundled services and the new hourly CP rates for the VAX and Cray reflect this in being 1.2 to 1.4 times the basic manufacturer's pricing of the computer systems. This means that a researcher or principal investigator who uses these systems will have access to computing power at a lower cost compared with those who purchase a machine solely for personal use when additional user overhead required to operate and manage such a system is taken into account.

L. A. Liddiard, 373-5239

	VAX-11/780	Cyber 730	Cray-1
Memory	1.5M bytes	1.31M chars	5.12M bytes
Mass Storage	176M bytes	1.38G chars	1.2G bytes
Relative CP power	1.21	2.40	36
SQRT CP power	1.1	1.55	6
lease/year	$78,629	$243,432	$1,500,600
software/hardware			
maintenance	$17,500	$54,156	$286,920
floorspace-power	$11,000	$15,500	$60,000
	$107,129	$313,088	$1,847,520
Estimate CP hours/year	2,000	2,000	1,000
Approximate cost/hour	$ 53.56	$156.54	$1847.52
Preliminary rate 1981-82	$ 72.00	$351.00	$2160.00

These figures are hypothetical; they are for this article only.

statistics

***PRODUCTION USAGE SUMMARIES: Cyber 74+730

	June, 1981	June, 1980	% Change
System resource units (SRU)	1,454,608 (1,825,079)	1,573,777 (1,925,720)	-7.6 (-5.2)
Batch jobs and MIRJE sessions	110,597 (122,658)	119,854 (130,125)	- 7.7 (-5.7)
Total central processor (CP hours)	183/196 (197/302)	187/256 (223/323)	11.7 / -6.5
DELAY queue CP hours	55/ 40 (58/ 62)	47/ 37 (55/ 48)	(5.3 / 29.2)
NO FRILLS queue CP hours	27/ 20 (27/ 20)	9/ 35 (9/ 35)	(300.0 /-42.7)
Mass storage transfers (KPR)	435,178 (556,561)	460,245 (563,711)	-5.4 (-1.3)
Magnetic tape transfers (KPR)	10,064 (16,124)	13,103 (19,677)	-23.2 (-18.1)
Pages printed, charged from UCC	874,897 (1,018,142)	1,179,753 (1,315,768)	-25.8 (-22.6)
Cards punched	260,935 (271,431)	374,271 (428,464)	-30.3 (-36.7)
Microfilm frames produced	13,987 (518,178)	20,662 (507,382)	-32.3 (2.1)
MIRJE terminal hours	17,276 (19,848)	17,591 (19,882)	-1.8 (-0.2)
Number of terminal sessions	44,349	39,051	13.6
Statos plotting production (feet)	8,499	7,244	17.3
Tapes mounted	11,569	12,910	-10.4
Average file storage (char)	3,734.5 million	3,267.5 million	14.3
Mean time between failures	87.4/86.5 hours	86.9/ 73.8	0.5 / -50.2
Available during scheduled hours	99.4/99.3 percent	99.6/ 99.6 percent	-0.2 / -0.3

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

DOWNTIME SUMMARY: July, 1981 (Column 1, Cyber 74 : Column 2, Cyber 730)

	0800-1800 M-F		other		total	
Total possible scheduled uptime hours	230.0	230.0	303.7	303.7	533.7	533.7
Total downtime hours (see Schedule A)	1.3	6.2	0.2	2.6	1.5	8.8
Total uptime hours	228.7	223.8	303.5	301.1	532.2	524.9
Uptime (percent)	99.4	97.3	99.9	99.1	99.7	98.4
Average downtime per occurrence (min)	11.4	28.8	10.0	39.5	11.2	31.3
Mean time between failures (hours)	32.9	17.7	151.9	75.9	66.7	31.4
Subsystem failures						
SUPIO	2	-	0	-	2	-
TELEX	1	2	0	0	1	2
EXPORT	0	-	0	-	0	-

Schedule A: downtime hours

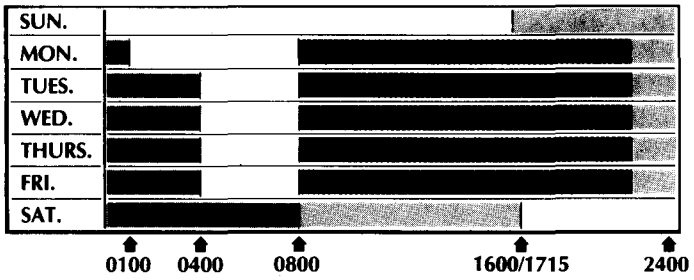
	Number		Total hours		Average minutes	
(1) Preventive maintenance over-runs	0	0	0.0	0.0	0.0	0.0
(2) Software related problems	0	0	0.0	0.0	0.0	0.0
(3) Hardware related problems	0	3	0.0	4.2	0.0	83.7
(4) Indeterminate problems	4	9	0.6	3.1	12.7	20.4
(5) External Problems	4	5	0.8	1.6	12.7	19.4

***PRODUCTION USAGE SUMMARIES: Cyber 172 (MERITSS)

	June, 1981	June, 1980	% Change
Number of jobs run	212,541	150,362	41.4
Central processor hours	158	124	27.3
MERITSS terminal hours	24,505	20,295	20.7
Number of terminal sessions	54,055	39,528	36.8
Maximum number of simultaneous users	171	144	18.8
Average file storage (char)	464.2 million	418.3 million	11.0
Mean time between failures	77.2 hours	49.7 hours	55.3
Available during scheduled hours	99.0 percent	96.5 percent	2.6

operations

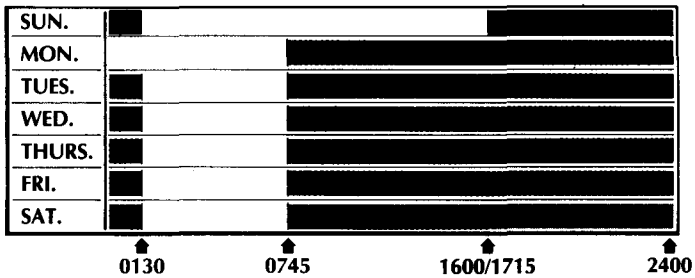
CYBER 74+730 OPERATING HOURS



Lauderdale, ExpEng, NORMAL rate
Lauderdale, ExpEng, DELAY rate
Lauderdale only, DELAY rate

See WRITEUP(HOURS) for schedule of batch job pickup/delivery service.

CYBER 172 OPERATING HOURS



Up, not attended
Up, attended

See WRITEUP(LABHOUR) for a schedule of open hours in the student computer laboratories.

TWIN CITIES CAMPUS PUBLIC REMOTE JOB ENTRY SITES

SITE	ID	SUPERVISOR	PHONE
		East Bank	
ElectE 38	4V	V. Zahhos	373-5346
EltH N640	4W	D. Anderson	373-5827
ExpEng 130	3L	I/O Coordinator	373-4596
ExpEng 130	4B	I/O Coordinator	373-4596
ExpEng 130	4N	I/O Coordinator	373-4596
FrontH	4E	D. Schumacher	373-2740
HSUnitA	4C	L. Croatt	373-7714
KoltH S191	4Z		
MinMet 321	41	R. Larson	376-2668
102 OMWL	29	H. Young	373-5370
Physics 69	44	L. Whitney	376-7627
TerrH W106	4I	B. Hackett	373-6621
D388 Mayo	24	L. Croatt	373-7714
Zoology 314	4J	E. Cushing	373-2232
		West Bank	
SocSci 167	4X	D. Lund	373-3608
SocSci 1009	4K	M. Mongiat	373-0168
		St. Paul	
BioSci 257A	47	M. Simmons	373-1961
ClaOff 125G	48	C. Bingham	373-0988
McN H	42	G. Wahlert	373-0939
NorH 24	4G	J. Colten	373-0990
NorH 24	40	J. Colten	373-0990
		Lauderdale	
User's Room	49	Secretary	373-4912
User's Room	3F	Secretary	373-4912

Keypunches provided at each site.

TWIN CITIES INSTRUCTIONAL COMPUTER LABORATORIES

SITE	SUPERVISOR	PHONE	EQUIPMENT
	East Bank		
CentH	R. Rickgarn	3-2289	TTY33(2)
ComH	C. Youngdale	3-2453	TTY43(1)
DiehlH 535	N. Sauro	6-7005	CRT(2)
EltH 121, 125	D. Anderson	3-5827	TTY33(6) Hazeltine(3) Teleray(2)
FrontH	D. Schumacher	3-2740	TTY33(1)
HS-A 1-752	L. Ellis	3-0331	TTY33(3) TTY43(3) Teleray(1) Decwriter III(1) Decwriter(1)
LindH 25	T. Chan	3-7580	CDC713(6) Decwriter (5) Decwriter III(1) Teleray(1) TTY43(16)
MechE 308	E. Riley	3-0340	TTY33(2) Teleray(4) Decwriter(7) Decwriter III(1)
SanfH	M. Kilbury	3-3434	TTY33(1)
TerrH	B. Hackett	3-3567	TTY33(1)
VincentH 4	W. Stenberg	3-2586	TTY33(2) CDC713(2) Decwriter III(1) Decwriter(7) Teleray(2)
WaLib 204	R. Estelle	3-2538	TTY43(9) CRT(2)
	West Bank		
BlegH 140	D. Lund	3-3608	TTY43(13) Teleray(1)
MdbH	R. Baker	3-9818	TTY33(1)
SocSci 167	D. Lund	3-3608	TTY33(2) Teleray(1) Decwriter(2)
	St. Paul		
ClaOff 125	C. Bingham	3-0988	TTY33(6) Hazeltine(2) Decwriter III(1) Decwriter(4)

phone numbers

Accounting	373-4548
Computer-Aided Instruction	376-2975
Computer Hours (recorded message)	373-4927
Computer Store	373-4877
Consulting	
HELP-line	376-5592
9 AM—5 PM, Monday—Friday	
Business Data Products	376-1761
10-11 AM and 1-3 PM, Monday—Friday	
Statistics Packages	376-5062
1-2 PM, Monday—Friday	
Data Bases	376-1761
10-11 AM and 1-2 PM, Monday—Friday	
Microcomputers	376-4276
10-12 AM and 2-4 PM, Monday—Friday	
Humanities	373-5780
10:30-11:30 AM, Monday, Wednesday, Friday	
Contract Programming	376-1764
Data Base Applications	373-7878
Educational Services	376-3963
EDUNET Interface	373-7745
Equipment Purchase or Lease	376-8153
Experimental Engineering I/O	373-4596
Field Engineering	376-7584
Graphics Software	376-1636
HELP-line	376-5592
9 AM—5 PM, Monday—Friday	
HOURS-line (recorded message)	373-4927
Image Processing Center	373-7878
Information, Experimental Engineering	373-4360
Information, Lauderdale	373-4912
Information Systems	373-7878
Instructional Labs	373-5754
Job Status, ExpEng (recorded message)	373-4994
Lauderdale Operations	373-4920
Lauderdale Services	373-7538
Lauderdale Users Room	373-4921
MECC Interface	373-4573
Microcomputers	376-8806
Microfilm Operator	373-4995
Newsletter Subscription	376-4668
Permanent File Restoration	376-5605
Professional Services Division (PSD)	376-1764
Project Assistance	376-1764
Program Librarian	376-1636
Programming Languages	376-7290
Reference Room	373-7744
Remote Batch (RJE) Services	376-1637
Short Courses	376-1637
Shuttle Bus Service	376-3068
System Status (recorded message)	373-4927
Tape Librarian and EBR Operator	373-4995
Technical Writing	373-2522
User Numbers	
Instructional Batch	373-2521
Instructional Timesharing	373-7745
Research Batch	373-2521
Research Timesharing	373-2521
User Services	373-4599

University Computer Center Newsletter

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