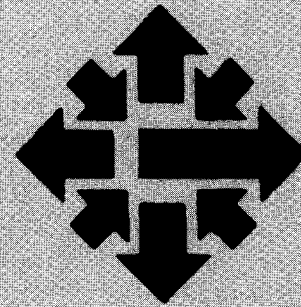


# University Computer Center Newsletter

University of Minnesota  
Twin Cities

April 1984  
Volume 18, Number 4



CM/CYBER	131K/720	131K/172	198K/172	262K/174	512K/825
Month-Year	Feb 81	Feb 82	Feb 83	Feb 84	Feb 84
SRUs	11.5	13.8	16.6	15.3	34.8
CP Seconds	19.5	23.5	28.6	20.5	54.5
System Overhead	11.7%	13.1%	12.8%	9.7%	11.2%
CYBER Instructions	30.5M	34.6M	41.9M	45.0M	102.7M
Disk Sectors Moved	10.2K	11.9K	13.3K	14.3K	25.8K
Characters Output	23.0K	25.4K	26.6K	26.9K	46.8K
XEDIT Sessions	2.9	3.1	3.7	3.9	5.5
Compiles and Runs	5.1	4.9	5.0	6.1	5.1
Execution Carriage Returns	74.1	81.0	83.4	81.4	133.5

Table 1. Resource use per user connect hour (M = +1,000,000; D = +10,000; K = +1000)

Maximum Users	169.0	220.0	226.0	261.0	38.0
ΔMax User/last year	15.7%	30.2%	2.7%	15.5%	b 32.3%
SRU/hour (peak day)	8.8	11.8	15.5	14.8	53.8
ΔSRU Peak date/average	-23.5%	-14.5%	-6.6%	-3.3%	+54.6%
Connect Hours (month)	39,923	55,631	58,341	66,176	7,800
ΔConnect Hour/last year	21.8%	39.3%	4.9%	13.4%	b 26.8%
XEDIT sessions	114,981	170,659	214,799	257,638	42,539
Pascal	51,267	100,902	146,277	184,930	4,774
BASIC	46,130	51,031	39,521	108,513	395
M77	41,446	62,988	66,499	76,832	27,386
MNF	56,168	43,886	28,230	14,463	7,373
COBOL5	4,343	6,375	6,541	11,013	2
SNOBOLC	1,053	3,194	854	3,659	27
COMPASS	2,934	2,362	1,435	1,808	31
Total Language Usage	<u>203,341</u>	270,738	289,357	401,218	39,988
ΔLanguage Usage	20.0%	33.1%	6.9%	38.7%	b 52.5%

Table 2. Maximum and total use (Δ = change in; b = both 174 and 825)

## MERITSS: Peaks and Prospects, 1984

In the May 1983 *Newsletter* we reported on the peaks and prospects of MERITSS for 1983. We stated then that as of August 1983, MERITSS would be a 360-port CYBER 835. We needed 120 more ports (over the 240 on the CYBER 174) to cover the remaining Minnesota Educational Computing Consortium (MECC) ports that were added to the MERITSS machine. But crystal ball predictions have a way of clouding over, and MERITSS currently consists of that same CYBER 174 and a new Institute of Technology Graphics CYBER 825.

The MECC transfer ultimately involved 90 rather than 120 ports. And during discussions spring quarter between University Computer Services (UCS), UCC, and the Institute of Technology, several people expressed concern about system requirements for graphics-intensive instruction. Some classes used 2½ to 5 times the System Resource Unit (SRU) totals of other classes, and at that rate the CYBER 835 would have had inadequate central processor power to handle 360 ports of both types.

During the early summer, discussions with Control Data Corporation resulted in a separate system jointly sponsored by Control Data and the Institute of Technology for IT graphics use. The MERITSS systems can now handle approximately 240 to 275 simultaneous users on the CYBER 174 (ME) and 50 to 60 on the CYBER 825 (MD).

### Analysis of Table 1

As in previous years, MERITSS use for the school term peaked in February,

the shortest month. I did not factor into my analysis the 1984 leap day, which gives an additional four percent edge to this February. Table 1 shows the resource use per user connect hour.

A glance over the years shows the growing sophistication of the average user, demonstrated by increasing system resources (SRUs) and execution interactions with the user program.

In the previous three years, compiles and execution runs stayed at about five per hour, but this year a dramatic 20 percent increase to six per hour appeared. The faster CPUs on the CYBER 174 over the 172 and 720 accounted for the reduction in system overhead this year.

Finally, the much larger resource use per hour on the CYBER 825 illustrates the intensive nature of graphics and CAD/CAM computation.

### Analysis of Table 2

This table offers a look at total use rather than individual user connect hours. In three years, total connect time and maximum simultaneous users have almost doubled. In previous Februarys we usually reported that the current system was inadequate to handle the peak load, and announced what we were doing to ensure that next year's February peak load could be handled.

I have tried to find a statistic that showed such "hurting." To numerically demonstrate it, I measured the change in SRUs delivered per hour on the peak day compared with the average for the entire month. When measured like this, we have improved from -23.5 percent in 1981 to -3.3 percent in 1984. The 825 is "hurting" by +54.6 percent, which means that underloaded systems can still deliver extra goods when required.

The language use shows that BASIC is a large component of the MECC load. And the transition from the FORTRAN 66 standard to the 78 standard is shown in 1981's 6:4 ratio compared with 1984's 1:5. Currently Pascal:BASIC:FORTAN are approximately 2:1:1.

### Analysis of MERITSS Graphs for February 21, 1984

The day of peak use was February

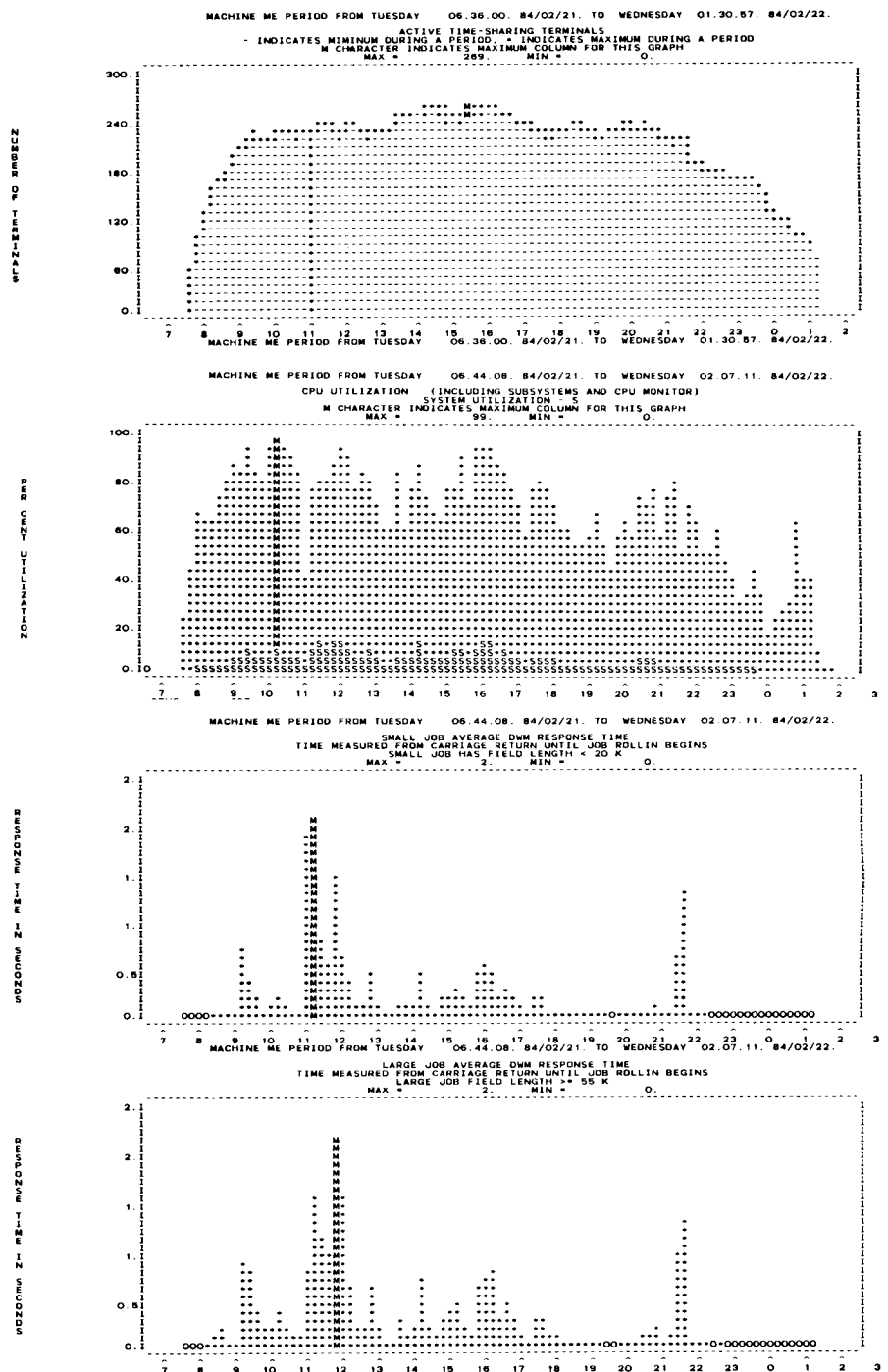


Exhibit 1. MERITSS Graphs for February 21, 1984

21, when over 260 simultaneous users were logged into the MERITSS CYBER 174. The system crashed around 11 a.m., noted by the starred vertical line at that time on the "active terminals" graph. CPU use for that 12 minute period dropped from the usual 80 percent to 40 percent, and the average response time graphs show large values, first for the small jobs and later (just before noon) for large

jobs. This transient phenomena is typical of any system running full speed that comes to a sudden halt. (Think of an accident on the freeway or power surges in electrical systems.) Except for that one-hour period, the CYBER 174 met our 3/4 second response time criteria.

Over 220 users logged in from 9 a.m. through 9 p.m. The extra dial-in ports available after 5 p.m. allow the system to be very well used.

## Future Prospects

### CYBER 174

Realistically, the natural growth in user system requirements of 10 to 15 percent annually means that the CYBER 174 can be expected to handle a maximum of 250 simultaneous users next year. We plan to increase the field length limit from 71,000 to 101,000 octal for next year.

We will also double the number of 1200-baud ports from 50 to 100; most CRTs in the instructional labs will run at 1200 baud.

Previous versions of the Pascal compiler did not handle field length adjustments very well, and the new version's automatic field length allows the larger field length validation to be used wisely. (Pascal accounted for about half the compiles and executions.)

### CYBER 825

We expect the heavy use graphics terminals to expand from ten to twenty. This as well as additional ports should allow 50 to 60 simultaneous users on that system.

### CLUSTERS

We are actively pursuing the possibility of installing three to four UNIX-based clusters of 16 ports connected by packet switching to the central MERITSS system. More on this in later *Newsletters*.

(Lawrence A. Liddiard)

## CRAY News

### APRIL FOOLS!

The upgrade to COS 1.12 bugfix 1 and CFT bugfix 1, previously announced for Sunday, March 18, was delayed. As this issue of the *Newsletter* went to press, it had been rescheduled for Sunday, April 1. Check WRITEUP(CRAYCHG) for additional information about this upgrade.

## Conference on Computers and Writing

The University of Minnesota will host a conference on "Computers and Writing: Research and Applications," Thursday through Saturday,

April 12 to 14. The conference will include panel presentations, roundtable discussions with presenters, and software demonstrations. Over forty presenters from around the country will explore current issues in computers and writing and will report on recent research. The topics include:

- Computer composing—how the use of computers changes students, professional writers, and texts.
- Computer labs for writing—which lab designs are most beneficial for student writers.
- Software design—the issues involved in the design of effective programs for writing classes.
- Text feedback—how the automatic evaluation of writing can be effectively integrated into current teaching styles.
- User attitudes—how on-screen writing affects both students and experienced writers.
- Writing and beyond—what the latest developments in printing, data base programs, and other innovations offer experienced writers.

The conference is sponsored by the College of Liberal Arts and the Composition Program at the University, by the Association for Computers and the Humanities, and by the Fund for the Improvement of Post-Secondary Education.

On-site registration (10 a.m. to 3 p.m., April 12, and 8 a.m. to 3 p.m., April 13) is \$50, and includes three luncheons, one dinner, two continental breakfasts, and a wine-and-cheese reception.

## Non-Numeric Computing

### LECTURE SERIES

Our series of lectures on non-numeric computer applications continues at 2:15 p.m., Thursday, April 12, in 447 Ford Hall. Randa Mulford of the Institute of Child Development will discuss her work on children's learning of the Icelandic language.

## Grants for Research

### CORPORATE SUPPORT REPORT

The Council for Financial Aid to Education recently announced that corporate support for education rose to a record high of 1.3 billion dollars in 1982. Twenty-four percent of the contributions were for departmental and research grants, fifteen percent came in the form of corporate matching gifts to universities. You can get a copy of the report for six dollars from:

Council for Financial Aid to Education  
680 Fifth Avenue  
New York, New York 10019

### BUSINESS AND INTERNATIONAL EDUCATION

The Education Department is accepting applications for new grants under the business and international education program. Two million dollars in grants is available for fiscal 1984. These grants support international education and training for business personnel and other educational activities that contribute to the ability of United States businesses to compete internationally. For more information, contact:

Dr. Stanley Patterson, Chief  
International Studies Branch  
International Education Programs  
U.S. Department of Education  
7th & D Streets SW  
Washington, D.C. 20202  
(202) 245-2794

### NATIONAL DIFFUSION NETWORK PROGRAM

Technology and adult literacy are among the fourteen priority areas in exemplary education programs eligible for grants from the National Diffusion Network Program in 1984. State and local agencies, institutions of higher education, and non-profit organizations may apply. For more information, contact:

Lois Weinberg  
Educational Specialist  
National Diffusion Network  
U.S. Department of Education  
400 Maryland Avenue SW  
Washington, D.C. 20202  
(202) 653-7006

## NATIONAL INSTITUTE ON EDUCATION

The National Institute on Education will soon announce program guidelines for its newly competitive awards for educational research centers and labs. Increased funds will allow the agency to fund new awards in three areas, including educational technology. We will provide more details as they become available.

## ETHICS AND VALUES

The National Science Foundation's program on Ethics and Values in Science and Technology (EVIST) supports research and related activities through grants for collaborative research projects, individual professional development activities, and dissertation support.

Universities, research laboratories, industrial firms, citizens groups, state and local governments, professional associations, and other non-profit and for-profit organizations are eligible for research grants. For individual awards, the minimum requirements are a Ph.D., M.D., or equivalent degree, plus several years of post-doctoral professional experience.

EVIST-supported projects should:

- illustrate to scientists and engineers the ethical and value implications of their work;
- address issues of importance to non-specialists in science and ethics, especially decision makers and people affected by science and technology;
- facilitate discussion and understanding among a broad range of groups; and
- contribute to the development of improved policy or practice.

For further information, contact:

EVIST

National Science Foundation  
Washington, D.C. 20550  
(202) 357-7552

*(Federal Grants & Contracts Weekly)*

## CARNEGIE CORPORATION

The Carnegie Corporation of New York has announced that the foun-

dation will pursue new directions. One of their broad goals is the education of all Americans, especially youth, for a scientifically and technologically-based society. For further information, contact:

Avery Russell  
Director of Publications  
Carnegie Corporation of New York  
437 Madison Avenue  
New York, New York 10022  
(212) 371-3200

## ARGONNE UNIVERSITIES ASSOCIATION

Under the direction of six trustees and in a period of ten years the Argonne Universities Association Trust Fund will be used:

- to foster scientific research by providing funding for conferences, workshops, and seminars that stimulate scientific and technological progress or strengthen the understanding of science and technology in the Midwest and the nation.
- to foster scientific research by providing funding for activities that promote scientific and technological collaboration either among universities or between universities and industry, government, or national laboratories.

Proposals will be accepted at any time, although action on them will be taken on a quarterly basis. For application procedures, call 373-5101.

*(LARES, vol. ix, no. 4)*

## EDUCOM COMPUTER LITERACY PROJECT

The EDUCOM Computer Literacy Project (ECLP) has been awarded a \$50,000 Exxon Education Foundation grant to support project activities during 1984.

The Project began as an effort to help colleges and universities identify information about successful computer literacy initiatives at other institutions, and to assist in the development, improvement, and implementation of new computer literacy programs.

Anyone interested in additional information should contact:

Vicky Walsh  
University Computer Center  
227 Experimental Engineering  
208 Union Street SE  
Minneapolis, MN 55455  
(612) 373-5780, 373-4360

## Computer Store

### DISK STORAGE

As new microcomputer owners gain confidence, experience, and proficiency, they also share a common problem: what to do with their growing collections of disks.

Software programs for text processing, graphics, special applications, and data bases, as well as backup disks, soon become a small mountain surrounding you and your micro. How can you protect your disks from the dust, scratches, and spills that would mean the loss of your work?

The Computer Store may have the answers for you. Library cases that will hold up to ten disks are available for both the 5-1/4 inch and 8 inch sizes. These cases are made of tough polypropylene and feature flexible fan tabs and a convenient pop-up easel display. They ensure easy access to and maximum protection of your data. The cases also have an embossed, leather-like texture that provides a non-slip grip. This lightweight case is especially convenient for carrying disks in a backpack or briefcase.

If you have a significantly larger disk collection, the Store offers "tub" files. They hold seventy or more disks and are a good choice for your disk library: those disks you want to keep, but which you may not use often.

You can buy both library cases and tub files at the Computer Store, 20 Experimental Engineering, 373-4877. Pay for them with cash, check, departmental journal voucher, or charge them to your non-instructional user account. Store hours are 9 a.m. to 4:30 p.m., Monday through Thursday, and 9 a.m. to 3 p.m., Friday.



"The Magic Mountain," inspired by Thomas Mann's novel, drawn by Mark McCahill on an Apple Macintosh.

## Microcosm

### APPLE MACINTOSH AT THE MICRO LAB

The Micro Group now has a new Apple Macintosh on loan from the Apple Corporation for demonstration purposes. We think that this is the most innovative microcomputer to come along in quite some time. It weighs about 22 pounds and uses 3-1/2" diskettes (they fit in a shirt pocket). It offers great graphics and it is very easy to use. Most people can learn how to operate it in two to four hours.

The Apple salesman left copies of Macwrite and Macpaint, the two pieces of software currently available for this machine. It is an ideal microcomputer for anyone who wants to prepare short documents. You can select different sizes and styles of print and you can also use the Macintosh to prepare sketches or diagrams to include in your document.

The Macintosh is available for inspection in the Microcomputer Research Laboratory for a limited time.

So if you want to see and use the Macintosh, visit the Microcomputer Research Lab in 125 Shepherd Laboratories from 10 a.m. to noon and from 2 to 4 p.m., Monday through Friday. To use the lab, you need a special Micro Research Lab card, available at our Computer Store, 20 Experimental Engineering. You can purchase cards that permit from one to five hours of lab time for a five dollar per hour fee.

### U OF M MICRO USERS GROUP

On Thursday, April 12, Gary Johnson will discuss and demonstrate LOTUS 1-2-3. This meeting of the University of Minnesota Microcomputer Users Group will be held at 3:15 p.m., in 125 Science Classroom Building.

The May meeting, on Thursday, May 10, at 3:15 p.m. in 555 Diehl Hall will include a talk by Dale Archibald, editor of the monthly *Computer User*, on how to choose telecommunications software.

For more information about either of these programs, call the Micro HELP-line, 376-4276.

## Documentation Data

### WELCOME & GETTING STARTED

Updated versions of our "Welcome" and "Getting Started" Briefs are now available in 130 Experimental Engineering. These one-page introductions to computing at UCC are directed to new or returning students, staff, and faculty. They provide basic information about the Computer Center: "Getting Started" briefly discusses our systems and services; "Welcome" introduces the MERITSS interactive instructional system that is used primarily by University undergraduates. There is no charge for these information sheets.

## The Classifieds

### FOR SALE

Noise isolation and protective cover for any dot-matrix printer, with accessory text stand. New. \$125, journal voucher or cash. 373-3137.

# Spring Quarter Short Courses

If you've been thinking about a summer job that will pay enough for you to return to school this autumn, the possibility of work in a computer-related field may have occurred to you. And these days nearly every field uses computing in one way or another. If you'd like to increase or develop your computing skills, UCC's spring quarter short courses may be the answer to your needs.

The courses that we'll offer this spring serve everyone from the novice to the specialist. If you know nothing at all about computers except what you've managed to pick up from television commercials and recent films, you could take "Introduction to Computer Terms," a primer on the terminology of the field, or "A Taste of Computing," a course that provides an overview of the many ways in which computers have become an integral part of modern society.

Those of you who want to familiarize yourselves more extensively with microcomputers have two options: we offer a course that discusses micros that use the CP/M operating system and another that focuses on those that use MS-DOS or some version thereof.

If you're really intrigued by computing and know something about programming, you might enjoy "Beginning Pascal." Pascal is one of the preeminent computer languages today. Or, if you're pursuing a degree in the social sciences, you might find our "SPSS" (Statistical Package for the Social Sciences) course valuable.

If you work on campus and frequently (or occasionally) deal with our mainframe systems, we offer courses on the VAX/VMS system, NOS (the CYBER operating system), COMPASS (CYBER assembly language), and the CRAY-1 and COS (the CRAY operating system).

Rounding out this spring's offerings are "XEDIT," a course that introduces the line editor available on our CYBERS, and "TELL-A-GRAF Graphics," an introduction to this easy-to-use graphics package available on our VAX.

Spring forward into the world of computing—and help prepare yourself for the future!

## INTRODUCTORY COURSES

Prices: U. student \$10, U. staff \$20, Non-University \$30

- 010 Introduction to Computer Terms (Jerry Larson)  
April 2-6 (MWF) 3:15-5 p.m.
- 040 Introduction to VAX/VMS (Bryan Senn and Jerry Stearns)  
April 3-19 (TTh) 3:15-5 p.m.
- 020 A Taste of Computing (staff)  
April 9-13 (M-F) 3:15-5 p.m.
- 050 NOS (CYBER operating system) (Kurt Richards and Jon Jamsa)  
April 16-May 2 (MWTh) 3:15-5 p.m.
- 130 XEDIT (Michael Dunham)  
April 24-May 3 (TTh) 3:15-5 p.m.
- 080 Intro to Micros: CP/M (Mark McCahill)  
April 30-May 3 (MTTh) 3:15-5 p.m.
- 090 Intro to Micros: MS-DOS (Mark McCahill)  
April 30-May 4 (MWF) 3:15-5 p.m.
- 150 Intro to the CRAY-1 and COS (Kurt Richards)  
May 7-10 (MTTh) 3:15-5 p.m.

## ADVANCED COURSES

Prices: U. student \$20-30, U. staff \$30-50, Non-University \$50-100

- 640 Beginning Pascal (Peter Oberg)  
May 7-18 (MWF) 3:15-5 p.m. \$25-\$40-\$60
- 530 SPSS (statistics package) (Bruce Center)  
May 14-18 (MWF) 2:15-4 p.m. \$20-\$30-\$55
- 570 TELL-A-GRAF Graphics (Carol Saylor)  
May 15-24 (TTh) 3:15-5 p.m. \$30-\$45-\$75
- 650 COMPASS (CYBER assembly language) (Tom Kovarik and John Larsen)  
May 14-June 1 (MWF) 3:15-5 p.m. \$30-\$50-\$80

REGISTRATION: You can register at the UCC Computer Store, 20 Experimental Engineering (hours: 9 a.m. to 4:30 p.m., Monday through Thursday; 9 a.m. to 3 p.m., Friday). A self-service terminal for registration is located inside the store. We accept mail registrations for an additional \$1 fee per class. The deadline for registration is store closing on the last working day before the class begins. You may pay course fees with cash, check, University journal voucher, or you can

charge them to your non-instructional UCC user account.

REFUND POLICY: No refunds are made after the class begins. Refunds are made in the same form as the fee was paid, i.e., check, journal voucher, UCC account credit.

If you have questions about short courses or about registration, call Jerry Stearns, 376-8806, or see WRITEUP(CLASSES) on the MERITSS or CYBER systems.

## PHONE NUMBERS

### Access:

CYBER(CA)—10, 30 cps .....	376-5730
—120 cps .....	376-5706
MERITSS(ME)—10, 30 cps .....	376-7730
—120 cps .....	376-7120
VAX/VMS(VA)—(autobaud) .....	376-9770
Budgets .....	373-2521
Computer-Aided Instruction .....	376-2975
Computer Hours (recorded message) .....	373-4927
Computer Store .....	373-4877
Consulting	
HELP-line .....	376-5592
9 a.m.-5 p.m., Monday-Friday	
Business Data Products .....	376-1761
1-3 p.m., Monday-Friday	
Statistics Packages .....	376-5062
1-2 p.m., Monday-Friday	
Data Bases .....	376-1761
10-11 a.m., Monday-Friday	
Microcomputers .....	376-4276
10-12 a.m. and 2-4 p.m., Monday-Friday	
Non-Numeric Computing .....	376-2944
1-3 p.m., Monday-Friday	
TELL-A-GRAF/DISSPLA .....	376-2663
1-3 p.m. Tuesday, Thursday	
Contract Programming .....	376-1764
Data Base Applications .....	376-1764
EDUNET Liaison .....	373-5780
Engineering Services .....	376-1023, 376-8153

Equipment Purchase/Information .....	376-8153
Experimental Engineering I/O .....	373-4596
Graphics Software .....	376-5592
HELP-line .....	376-5592
9 a.m.-5 p.m., Monday-Friday	
HOURS-line (recorded message) .....	373-4927
Information, Experimental Engineering .....	373-4360
Information, Lauderdale .....	373-4912
Instructional Labs .....	376-2703
Instructional Services .....	373-7745
Lauderdale Computer Room .....	373-4940
Lauderdale Services .....	373-4995
Lauderdale Services Manager .....	373-7538
Lauderdale Users' Room .....	373-4921
MECC Liaison .....	373-7745
Newsletter Subscription .....	373-4912
Permanent File Restoration .....	376-5605
Professional Services Division (PSD) .....	376-1764
Project Assistance .....	376-1764
Reference Room .....	373-7744
Remote Batch (RJE) Services .....	376-2703
Short Courses .....	376-8806
Shuttle Bus Service .....	376-3068
System Status (recorded message) .....	373-4927
Tape Librarian: see Lauderdale Services	
Text Processing Services .....	376-2943
User Accounts .....	373-4548

## OPERATING HOURS

	CYBER (CA)	Low rate	CRAY (CR)	MERITSS (ME)	VAX (VA)
M-F	7 a.m. - 4 a.m.	8 p.m. - 4 a.m.	7 a.m. - midnight	7:45 a.m. - 1:30 a.m.	8 a.m. - 6 a.m.
Sat	4 a.m. - 5:15 p.m.	4 a.m. - 5:15 p.m.	7 a.m. - 5 p.m.	7:45 a.m. - 1:30 a.m.	24 hours
Sun	4 p.m. - 1 a.m.	4 p.m. - 1 a.m.	4 p.m. - midnight	4 p.m. - midnight	24 hours

### PUBLIC LABS—TWIN CITIES CAMPUS

Location	Batch	Interactive	Micro	Location	Batch	Interactive	Micro
<i>East Bank</i>				<i>West Bank</i>			
Arch 160		X	X	BlegH 25		*	
CentH		X		BlegH 90	X		
ComH		X		BlegH 140		X	
DiehIH 270, 207		X		MdbH		X	
EltH 121, 125		X		OMWL 2		X	
EltH N640	X			SocSci 167			X
ExpEng 130		*					
FolH 14, 14a	X	X*	X	<i>St. Paul</i>			
Lindh 26	X	X		BaH		X	
MechE 308		X		ClaOff 125	X	X	
Physics 69		*					
SanfH		X					
TerrH		X					
VincH 4		X					
WaLib 204		X					

\* Research cluster; access to CYBER CA and VAX/VMS

X in interactive column indicates access to MERITSS

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Michael M. Skow, Acting Director

The *UCC Newsletter* is published monthly by the University Computer Center. Deadline for articles is the 10th of the month preceding publication; deadline for short announcements is the 15th. The *Newsletter* is edited and coded for typesetting at the Computer Center, then typeset on a Linotron 202 and printed at the University of Minnesota's Printing and Graphics Arts Department.

Comments, suggestions, articles, and announcements should be directed to the editor, 227 Experimental Engineering, (612) 376-1491.

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

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# University Computer Center Newsletter

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