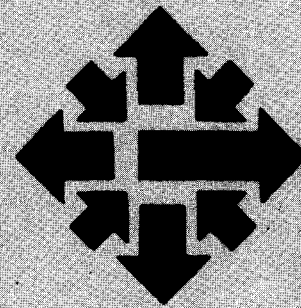# University Computer Center Newsletter

**University of Minnesota
Twin Cities**

**July 1983
Volume 17, Number 7**

CYBER Changes in August and December

In a series of articles that began in the January *Newsletter* (*The Fiscal Picture at UCC*) and continued through May (*MERITSS—Peaks and Prospects* and *Rate Reductions*), we have announced the pending replacement of our current CYBER systems with newer 800 series equipment, and we have promised lower CYBER SRU charges for fiscal 1983-84.

Goals

We have three main goals related to these system changes:

- To offer continuity in CYBER service at lower cost
- To meet our user community's larger memory needs
- To simplify CYBER access

Constraints

Most CPU manufacturers, including Control Data, have linearized the cost for their computer lines. This means that Grosch's law of "four times the computer power for twice the cost" has typically been replaced by "two times the power for twice the cost" (but also twice the memory). With this kind of pricing the norm, the consumer's choice is either to switch to a vendor such as Cray Research that offers more significant performance/cost with the attendant changeover problems, or to lease the minimum processor power that provides for current use. The total research CYBER SRUs per year at UCC has been fairly constant for the past three years. Thus for the sake of simplicity and cost effectiveness, we have ordered a CYBER 800 series with at least five million instructions per second, 512K

August—System CB (CYBER 74 & ECS) replaced with CYBER 800
 —CB file family available only from system CB
 —All batch jobs given 375K maximum field length (largest possible on CYBER)
 —Default RJE batch jobs run on CB
 —ECS jobs only run on CB in simulation mode with current 230K limit
 —UCC will transfer file family from CB to CA at user's request
 —Files are shared between CA and CB *only* through shared file units SHA and SHB

Fall—Selected MERITSS CP intensive courses use CB

December—System CA (CYBER 730) replaced with CYBER 800
 —Default batch jobs run on CA
 —Larger field lengths given for interactive CYBER access
 —UCC transfers file family from CB to CA at user's request

Exhibit 1. CYBER changes that will affect users, August-December 1983.

---

words of memory, and 20 PPUs. It will be installed in December 1983 to replace the CA system.

Another crucial reason to upgrade systems has been the increased cost of maintaining older systems; for UCC this means that the CYBER 74 and Extended Core Storage (ECS) can be replaced with a leased CYBER 800 for a lower total monthly cost than the maintenance cost of the older systems. The CYBER 800 series has sufficient central memory and can simulate ECS commands. Users with programs that require ECS will be able to run them without any changes. The CB (CYBER 74 and ECS) system will be replaced with a CYBER 800 in August.

MERITSS is priced on a per port/

year basis, but some classroom problems require six times the average processor power of most MERITSS users. During spring quarter, for example, Mechanical Engineering put a heavy load on the upgraded MERITSS system with its CP intensive problems. A number of departments require this type of processor power, which invalidates the study that justified a CYBER 835 for MERITSS. Therefore we will keep the CYBER 174 for the MECC/MERITSS main instruction system, but will switch heavily CP intensive classroom accounts to the CYBER 800 that replaces the 74/ECS.

Exhibit 1 delineates the specific changes that will occur on the CYBER systems between August and December. (*Lawrence A. Liddiard*)

System News/Notes

Microcosm

NEW MICROCOMPUTER SOFTWARE

The COM communications program is now available for the Zenith Z-100 microcomputer under both the CP/M and Z-DOS operating systems. COM has many intelligent terminal functions. You can use it to transfer files between your micro and our CYBER and VAX mainframes. It also allows you to communicate with most other computers.

Encode/Decode and WSUtils, two new software packages, are now available at the UCC Computer Store, 211 Experimental Engineering.

Encode/Decode allows you to transfer any file between computers that run the package. It converts any microcomputer file (including binaries) to a text file. These can then be transmitted to another computer with the COM communications program. You then use Encode/Decode to convert your file back to its original form.

WSUtils converts WordStar document files to plain text files. WordStar document files contain special control codes that prevent them from being transferred by COM, but plain text files can be transferred. WSUtils also converts text files to WordStar document

files so they can be used with the WordStar word processing program.

Versions of Encode/Decode and WSUtils are available for the IBM PC (PC-DOS operating system), Zenith Z-100 (CP/M or Z-DOS), and Xerox 820 (CP/M) on the appropriate utilities disk.

The UCC Microcomputer Systems Group provides free updates of these packages to the original purchaser for one year. For further information about them, contact the Micro HELP-line, 373-4276, from 10 a.m.-noon and 2-4 p.m., Monday through Friday.

(David A. Larsen)

U MICRO USERS GROUP MEETING

The next meeting of the University Microcomputer Users Group will be Thursday, July 14, from 3-4:15

p.m. in 155 Ford Hall. A panel of experts will present their views on becoming microcomputer users. They will discuss how to define your needs as a prospective user, and how to choose and evaluate software, hardware, and vendors. An audience question-and-answer session will follow the presentation. After the program, everyone is invited to 160 and 170 Ford Hall to meet members with microcomputers and discuss selection, evaluation, and any other aspects of microcomputing of interest to them. If you would like to join the University of Minnesota Microcomputer Users Group, send your name and address to:

University of Minnesota
Microcomputer Users Group
227 Experimental Engineering
Minneapolis campus

Item Number	Name	Price
941	Zenith Z-100 CP/M COM (5-1/4")	$50
942	Zenith Z-100 Z-DOS COM (5-1/4")	$50
931	Xerox Utilities disk (5-1/4")	$35
932	Xerox Utilities disk (8")	$35
943	Zenith Z-100 CP/M Utilities disk (5-1/4")	$35
944	Zenith Z-100 Z-DOS Utilities disk (5-1/4")	$35
945	IBM PC PC-DOS Utilities disk (5-1/4")	$35

Exhibit 1. New microcomputer software available at the Computer Store.

Computer Store

HOURS WILL CHANGE JULY 18

Effective July 18 (the first day of Summer Session II), the Computer Store will extend its daytime hours. The Store will be open Monday through Thursday, 9 a.m.-4:30 p.m. It will close at 3 p.m. on Fridays. The Store will also be open from 5-7 p.m. Monday through Thursday during the first week of each quarter only. Evening hours have been discontinued for the rest of each quarter.

(Marvin Mohr)

IMS Journal

SYSTEM 2000 GROUP WILL MEET IN MONTREAL

The Association of System 2000 Users for Technical Exchange (ASTUTE) will hold its fall meeting in Montreal, Quebec from October 19-22, 1983. ASTUTE provides an opportunity for System 2000 users and technical staff from Intel Corporation to share information and ideas.

Detailed information on the convention program and arrangements

should be available August 1. Direct your questions about the organization to Cheryl Vollhaber at UCC (376-1761) or to ASTUTE President Roberta A. Armstrong (373-2106). If you would like to be on the ASTUTE mailing list, call Ms. Armstrong (in addition to the fall meeting information, a newsletter will be published this month).

Math and Statistics Libraries

IMSL EDITION 9

On June 14, we installed Edition 9 of the IMSL Library on UCC's CYBERs and CRAY. The library's 517 FORTRAN routines cover the general fields of mathematics and statistics. Edition 9 adds 40 new routines to and deletes 19 routines (see Exhibit 1) from Edition 8.1, which is no longer available.

In addition, the following routines have been reclassified as nuclei and are no longer documented in the reference manual: EBALAC, EBALAF, EBBCKC, EBBCKF, EHBCKF, EHBCKH, EHESSC, EHESSF, EHOBKS, EHOUSH, EHOUSS, ELRH1C, ELRH2C, ELZHC, ELZVC, EQRH3F, EQZQF, EQZTF, EQZVF.

IMSL supplies a set of updates to convert an Edition 8.1 manual set to an Edition 9 set. Contact the UCC Computer Store, 211 Experimental Engineering (373-4877), or IMSL for details.

Here are some highlights of Edition 9:

BASIC STATISTICS: Two new routines for frequency tabulations have been added. BDTAB tabulates counts for multivariate data and BDTWT forms two-way tables and computes the Pearson chi-squared statistic. Three other routines compute statistics such as means, variances, covariances, skewness and kurtosis coefficients, and confidence limits. These allow differential weighting of the observations; hence, the new routine for bivariate statistics, BECOVW, simplifies the computations for weighted regression. The routines also allow specification of missing values and provide user options for handling of observations with missing values. There are three new easy-to-use routines for producing histograms and a new routine for producing probability plots for normal, lognormal, half-normal, exponential, Weibull, and extreme value distributions.

OTHER STATISTICAL PROCEDURES: A new routine for life table analysis produces the usual statistics for either a current life table or a cohort table. Friedman's tests and

DBCEVU	replaced by DBCEVL
DBLINT	replaced by DBLIN
EQRH1F	deleted
FTCMP	replaced by FTCP
FTMPS	replaced by FTMA
FTMXL	replaced by FTML
FTTRN	replaced by FTTR
IBCEVU	replaced by IBCEVL
IBCICU	replaced by IBCCCU
NMKEN	replaced by NMKN
USCRDM	deleted
USHIST	replaced by USHST
USHIUT	replaced by USHST2
USHV1	replaced by USHHST
USPLT	replaced by USPLO
USPLTD	replaced by USPLOD
USRDM	deleted
USRDV	deleted
ZSYSTM	replaced by ZSPOW and ZSCNT

Exhibit 1. Routines deleted from Edition 9 of the IMSL Library and their replacements, if any.

nonparametric multiple comparisons in a randomized complete block design are performed by another new routine. Some of the routines for time series analysis have been replaced by routines that are more stable in computing preliminary maximum likelihood estimates.

DIFFERENTIAL EQUATIONS, QUADRATURE, AND DIFFERENTIATION: A routine to solve a partial differential equation system of parabolic type using a collocation method combined with the method of lines has been added. A boundary value problem solver which uses finite differences with deferred corrections, and a Gaussian integration routine designed for integrating multivariate functions over hyperrectangles are also featured additions. Other new routines integrate a bivariate function over non-rectangular regions and calculate derivatives of a user-supplied function. DGEAR has also been modified to handle Jacobians that frequently arise in solving partial differential equations.

EIGENSYSTEM ANALYSIS: A new routine has been added to solve the generalized eigenvalue problem $A x = \text{Lambda } B x$ when A and B are symmetric and B is positive definite. This situation arises frequently in differential equation calculations.

RANDOM NUMBER GENERATION: There are new routines for generating variates from a von Mises distribution, for generating a random correlation matrix, and for generating a random contingency table with given row and column totals. This latter routine may be useful in estimation of probabilities of various table configurations.

INTERPOLATION, APPROXIMATION, SMOOTHING: The routine that calculates the coefficients of a bicubic spline has been replaced by a much more efficient one. Routine IQHSCV, for bivariate interpolation to scattered data, has been modified to use a better derivative estimation algorithm, resulting in improved accuracy.

LINEAR ALGEBRAIC EQUATIONS: Two new routines efficiently solve very large linear systems. LEQIF drastically cuts down on the number of page faults when solving a large system in a virtual memory environment, while LEQOF solves the system out of core.

SPECIAL FUNCTIONS: New routines for Weierstrass P-functions and their derivatives for both the lemniscatic and equianharmonic cases have been added. Seven new routines compute Bessel functions, and modified Bessel functions of the first and second kinds. Other new routines compute exponential integrals of general order and incomplete elliptic integrals of the first, second, or third kind. Another new routine computes expected values of normal order statistics.

UTILITY FUNCTIONS: The printer plotting routines have a simplified input sequence, especially the input of title and axis labelling information. New routines have been added for easy printing of complex vectors and matrices.

SORTING: Four new routines sort a matrix using keys in the rows or columns. Two of these new routines are easy-to-use versions with very simple calling sequences for sorting columns only. The other two allow several options, such as sorting rows or columns by algebraic or by absolute value or by their l-1, l-2, or l-infinity norms, in ascending or descending se-

quence. In addition, they can keep track of the sort in a permutation vector that is returned to the user and/or provide an index of the distinct rows or columns. They can optionally leave the original matrix unchanged (i.e., perform a detached key sort).

ZEROS AND EXTREMA: A new routine for solving non-linear systems based on the MINPACK implementation of Powell's hybrid algorithm has been added. Another new routine finds a minimum of a single argument function. The routines should work well both near and moderately far from the solution. Another routine attempts to find the global minimum of a multivariate function in a hyperrectangle. This program uses ZSRCH to generate various initial values and implements a change of variable that converts all possible global minima (including those on the boundary) into local minima. ZXMIN is invoked to find and compare the local minima of the now uncon-strained problem. (J. Wang, 376-5262)

LIBRARY CHANGES

On June 14, we changed the RK routine on MINNLIB for the CYBERs and CRAY to correct an error that occurred when users initialized their own step size. This error had slowed RK down a bit but did not otherwise affect any previous re-sults. (M. Frisch, 376-1636)

Statistics

BMD SERIES WILL BE REMOVED IN AUGUST

The forerunner of the present BMDP statistical programs was a series called BMD. Use of BMD has de-clined steadily since BMDP's imple-mentation several years ago. For that reason, the BMD series will be removed from the system at the end of the second summer session. We recommend that you begin converting your BMD programs to BMDP to accomodate that change. BMDP81, presently available as FU-TURE,BMDPxx, will become current at that time. MINITAB81, now avail-able as the future version, will also become current for fall quarter.

(Patricia C. Bland)

Documentation News

LISP BRIEF

A *Short Guide to the LISP Facilities at the University of Minnesota*, a new UCC Brief, is now available free of charge in 140 Experimental Engineering.

Suggestion Box

The Humanities Lab needs a consul-tant! (David Bibeau)

The extent and quality of consulting at the various University lab facili-ties are the responsibility of the de-partment or college that provides the lab. The Humanities Lab in Folwell Hall is provided by the Col-lege of Liberal Arts; we'll forward your request to them.

(Michael Skow)

Grants for Research

GOVERNMENT/UNIVERSITY RELATIONS

A panel established by the National Academy of Sciences (NAS) recommends that a forum on government and university relations be created to mediate issues that range from accountability for federal research funds to the review of sensitive research data. The Academy is ready to proceed if they receive support from government representatives. Among other issues, the committee recommends more productive dialogue between academia and government on the support of graduate science and engineering students, the deterioration of scientific facilities, and cost-sharing and accounting of federally sponsored research projects. (*Federal Grants & Contracts Weekly*)

CORPORATION FOR PUBLIC BROADCASTING GRANTS

The Corporation for Public Broadcasting (CPB) will award up to ten million dollars in 1983 to support projects that use telecommunications to provide college level courses that would otherwise be unavailable. Grants will be made for demonstration proposals and materials development proposals (applications will compete for funding only against others in the same category).

Demonstration proposals should emphasize experimental pilot projects that explore the application of instructional methods, course designs, and new technologies for use in higher education.

Materials development proposals should address the production of college-level materials to be made available by telecommunications systems. Such materials could include television and radio programs, computer software, or other telecommunications-based resources for existing or new courses.

Request a copy of the announcement containing guidelines and preliminary application materials from:

Corporation for Public Broadcasting
Annenberg School of
  Communications Project

1111 16th Street NW
Washington, DC 20036
(202) 293-6160

JOINT SCIENCE/HUMANITIES AWARDS

The National Endowment for the Humanities (NEH) and the National Science Foundation (NSF) have research funds available for projects in "Humanities, Science, and Technology." Both individual and collaborative projects will be funded. For more information, call Eric Juengst, (202) 724-0276.

CYBER Notes

NEW VERSION OF EMULATE

We have placed a new version of EMULATE, the instructional computer simulator and assembler, on all CYBER systems. It is described in WRITEUP(EMULATE), a new version of WRITEUP(CDC3200). The new EMULATE is compatible with the old version. (*Richard L. Hotchkiss and Richard T. Franta*)

COBOL 4 TO BE REMOVED IN FALL

We will remove the COBOL 4 compiler from the system at the beginning of fall quarter 1983. You must convert your COBOL 4 programs to COBOL 5 by then. If you have questions about this change or need assistance, call our Information Management Systems Group at 376-1761. COBOL 5 documentation is available at the Computer Store. We will also remove CYBER Record Manager Advanced Access Methods Version 1 in the fall. (*Steve Reisman*)

CDC SUPPORT FOR FTN HAS ENDED

Control Data Corporation (CDC) removed support for FTN, FORTRAN Extended Version 4, on June 30, 1983. Corrections will no longer be made to the FTN compiler. While FTN will still be available at UCC for many years, we cannot guarantee that FTN programs will work on future releases of NOS (the Control Data CYBER Network Operating System).

We strongly recommend that you develop new programs in FTN5 or M77 and convert FTN and MNF

programs as time permits. Conversion may be as simple as recompiling your program using one of the compilers that conforms to the new standard and checking for correct results. If, however, you must make some changes to the program, F45, a conversion aid, may prove helpful (especially with long programs). The *F45 Reference Manual* (CDC publication number 60483000) is available for use in our Reference Room, 140 Experimental Engineering, or you can purchase a copy for $5.30 from the Computer Store, 211 Experimental Engineering. Differences between MNF and M77 are documented in WRITEUP(M77).

When you convert your programs, you may want to make them conform to ANSI standards. This makes them more portable and makes any future conversions easier. Non-standard statements can be detected by using the EL = 0 parameter on the M77 control statement or the ANSI parameter on the FTN5 control statement. For more information or assistance, call Janet Eberhart, 373-5907.
(Janet Eberhart)

All Systems Bulletins

REMOTE JOB ENTRY SURVEY

UCC is distributing a survey to help us meet your remote job entry (RJE) needs in the near and distant future. The survey will be mailed to all current RJE site coordinators, but we would also like to solicit information from prospective users. If your organization does not have an RJE at the present time, but may set one up, please contact Joe Cornell (376-2703) for a copy of the survey.

REST IN PEACE: THE 1004 RJE STATIONS

We removed all remaining Univac 1004 RJEs from service on July 1, 1983. SUPIO, the UCC software required to drive the 1004s, is nonstandard and difficult to maintain through system and hardware upgrades. Our records also show that RJE use continues to decrease as interactive use grows. So the venerable 1004 workhorses have now retired. (*Richard L. Hotchkiss*)

SUMMER SHORT COURSES AT UCC

INTRODUCTORY COURSES

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

080 Introduction to Microcomputers (Mark McCahill)
July 5-19 (TTh)   3:15-5 p.m.

050 NOS (CYBER operating system) (Tom Kovarik)
July 6-18 (MWF)   3:15-5 p.m.

130 XEDIT (Michael Dunham)
July 12-21 (TTh)   1:15-3 p.m.

055 Interactive System Commands (Tom Kovarik)
July 20-22 (WThF)   3:15-5 p.m.

180 Introduction to CRAY-1 and COS (Tom Kovarik)
August 2-4 (TWTh)   3:15-5 p.m.

040 Introduction to VAX/VMS (Linda Merims)
August 11-25 (TTh)   1:15-3 p.m.

ADVANCED COURSES

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

^ 620 Advanced CYBER/CRAY FORTRAN (Janet Eberhart)
June 27-July 15 (MWF)   3:15-5 p.m. $35-$45-$65

^ 580 WordStar (Simin Hickman)
July 18-20 (MW)   2:15-4 p.m. $20-$30-$50

510 Introduction to System 2000 (Cheryl Vollhaber)
July 25-August 10 (MWF)   3:15-5 p.m. $30-$40-$50

530 SPSS(statistics package) (Patricia Bland)
July 25-27 (MTW)   2:15-3:30 p.m. $20-$30-$55

^ 570 TELL-A-GRAF and DISSPLA (Carol Saylor and John Cornelison)
July 25-August 5 (MWF)   1:15-3 p.m. $30-$40-$75

NOTE: Caret (^) indicates a new course.

HOLIDAY: Monday, July 4, is a University holiday. No classes will be held.

REGISTRATION: You can register at the UCC Computer Store, 211 Experimental Engineering (hours: 9 a.m.-3 p.m., Monday through Friday, and 5-7 p.m., Monday through Thursday; these hours will change July 18—see the Computer Store article elsewhere in the *Newsletter*). A self-service terminal for registration is located outside the Store. We accept mail registrations for an additional $1 fee per class. Registration deadline is store closing on the last working day *before* the class begins. You may pay course fees with cash, check, University journal voucher, or 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 cps 376-7710
　　　　　—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
　　1-3 p.m., Monday-Friday
Microcomputers 376-4276
　　10-12 a.m. and 2-4 p.m., Monday-Friday
Non-Traditional Computing 373-5780
　　10:30-11:30 a.m., Monday, Wednesday, Friday
TELL-A-GRAF/DISSPLA 376-2663
　　1-3 p.m. Tuesday, Thursday
Text Processing 376-2943
　　9 a.m.-noon Tuesday-Thursday
Contract Programming 376-1764
Data Base Applications 376-1764
Educational Services 376-3963
EDUNET Liaison 373-7745
Engineering Services 376-1023, 376-8153

Equipment Purchase/Information 376-8153
Experimental Engineering I/O 373-4596
Field Engineering 376-7584
Graphics Software 376-5592
HELP-line 376-5592
　　9 a.m.-5 p.m., Monday-Friday
HOURS-line (recorded message) 373-4927
Image Processing 376-2895
Information, Experimental Engineering 373-4360
Information, Lauderdale 373-4912
Information Systems 376-1764
Instructional Labs 376-2703
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
Program Librarian 376-1636
Programming Languages 376-7290
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
User Services 376-3963

OPERATING HOURS

	Cyber CA/CB	Low rate	Cray (CR)	MERITSS (ME)	VAX (VA)
M-F	7 a.m. - 4 a.m.	8 p.m. - 4 a.m.	8 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.	8 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
East Bank				*West Bank*			
				BlegH 25		*	
Arch 160		X	X	BlegH 90	X		
CentH		X		BlegH 91T			X
ComH		X		BlegH 140		X	
DiehlH 270, 207		X		MdbH		X	
EltH 121, 125		X		OMWL 2		X	
EltH N640	X						
ExpE 130	?						
FolH 14, 14a	X	X*	X	*St. Paul*			
LindH 25, 26	?	X					
MasCan 39	X			BaH		X	
MechE 308		X		ClaOff 125	X	X	
Physics 69		*?		NorH 24	X		
SanfH		X					
TerrH		X					
VincH 4		X					
WaLib 204		X					

* Research cluster; access to Cyber 730 and VAX/VMS
X in interactive column indicates access to MERITSS
? Unknown at the present time

Contents

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

University Computer Center Newsletter

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

July 1983