Your Guide to Computing at UCC

Welcome to the wonderful world of computing at the University Computer Center (UCC), which offers the students, faculty, and staff of the University of Minnesota (and other users as well) computing services from microcomputers to supercomputers.

In this article, we provide an overview of what is new or different at UCC this fall, as well as offering a quick glance at some UCC services that you might find useful, perhaps essential.

Our Current Configuration

Five different mainframe computers currently service UCC's far flung user community:

- the CRAY-1 supercomputer, devoted to large scale research
- three CYBERS—systems CA and CB for research computing and the MERITSS (ME) system for instructional computing
- the VAX, especially suited to graphics and text processing.

One recent crucial change that will affect anyone who uses the CA or CB system concerns file families: the CA file family had been shared by the two systems until recently; now, however, each is available only on the appropriate machine—CA file family on the CA system, CB file family on the CB system. For more information about this change, see the article, "August CYBER Changes," in the August *Newsletter*.

When you log on to our CYBERs, your first message is from the new UCC Network, implemented in August. It displays a message that looks like this:

Exhibit 1. Machine ID and Family Name Changes

	NOS R4	NOS R5
MACHINE ID	64	**ME**
	72	**CA**
	74	**CB**
	CR	**CR**
	(VAX — no ID)	**VA**
FAMILY NAME	C172	**CA**
	C74	**CB**

Exhibit 2. ROUTE Parameter Changes and a Few Examples

NOS R4	NOS R5	R5 USE
MI = xx	ST = Mxx	Machine name
UN	RUN*	Remote user number
PW	RPW*	Remote password
CN	RCN*	Remote charge number
PN	RPN*	Remote project number
(none)	RFM*	Remote family name
TID	UN	Output site

*Remote parameters are for use in ROUTE statements from MERITSS to the CYBERS *only*.

ROUTE(FILE,DC = PR,TID = EA)
   may still be used in place of the more proper
ROUTE(FILE,DC = PR,UN = EA)

ROUTE(FILE,DC = PR,UN = CYBERUN,PW = CYBERPW,MI = 74)
   must be changed under NOS R5 to
ROUTE(FILE,DC = PR,RUN = CYBERUN,RPW = CYBERPW,ST = MCB)

ROUTE(FILE,DC = IN,MI = 72)
   must be changed under NOS R5 to
ROUTE(FILE,DC = IN,ST = MCA)

Exhibit 3. Renamed UCC Control Statements

OLD	NEW	Meaning
RWF.	REWIND(*)	Rewind all local files
RTF.	RETURN(*)	Return all local files
ULF.	UNLOAD(*)	Unload all NODROPed files

UCC Network V1.0, Port 1HAB.
To connect to machine xx, type: C xx
xx is CA, CB, ME, or IB
*

You respond with a "C" followed by a blank, then the name of the system you want to use. Regular log-on message then appears to ask for your family, user number, and password. More information on the UCC Network is available in the August *Newsletter*.

All five operating systems were upgraded in March. The CYBERs now run the NOS 1.4-552 operating system, the CRAY runs COS 1.11, and the VAX runs VMS 3.3. If you have not used our systems recently, these upgrades will affect you to some extent (see exhibits 1, 2, and 3). For more information, see the March 1983 *Newsletter*.

If you would like an on-line copy of any issue of the *Newsletter* from the past year (November 1982-October 1983), use the control statement WRITEUP(NLETTER = xxx), where xxx is a three letter abbreviation for the month: NOV, APR, JUN, etc.

Becoming a User

If you choose to use any of our computer systems, you must have the appropriate user number(s). To apply for one, submit a properly completed "request for access" form. You can pick up a form in 227 Experimental Engineering, call 373-4548 to request one (373-7745 for a MERITSS account), or write directly to the accounting department at:

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

Help at Your Fingertips

Once you have joined the myriad computerphiles on campus, you might have some questions about computing, whether general or specific. A number of sources may provide the answers you seek. UCC publishes a wide range of documentation that describes our systems and services, as well as various applications packages.

Facilities and Services is a fine introduction to UCC for anyone new to the University; it also serves as a quick refresher for those of you who may have been out of touch for a while. The manual describes our facilities (hardware, public labs, buildings, etc.) and services (consulting, education, documentation), and lists the software available for different applications (graphics, engineering, languages, etc.)

If you are totally new to computing, you may find our *Introduction to Computing* an essential resource. And this *Newsletter* is a veritable fount of information each month as it keeps you informed about the state of our systems and services.

When you have an immediate problem, assistance is as near as your phone. Our HELP-line (376-5592) is staffed from 9 a.m. to 5 p.m. Monday through Friday to answer any questions you may have about computing at UCC. In addition to this general HELP-line, several additional phone consulting services answer questions about data base management systems, statistics, microcomputers, text processing, graphics packages, and non-traditional computing. The numbers and hours for these services are listed under "Consulting" in the phone list on the *Newsletter*'s penultimate page.

Individual in-person consulting is also available daily in 140 Experimental Engineering (see the related article under "Consulting"). Whenever you contact one of our consultants, whether in person or by phone, be sure to have all the necessary information about your problem at hand. That will make the problem solving process easier for everyone.

Our Reference Room, 140 Experimental Engineering, contains a non-circulating collection of books and periodicals related to computing. Copies of all our documentation are available there for your perusal.

Our Computer Store, now installed in its capacious new quarters in 20 Experimental Engineering, has floppy disks, software, documentation, and other computer supplies available for purchase. The Store is also our site for Short Course registration.

UCC's Short Courses provide information on both introductory and advanced topics for very reasonable fees. From the basics such as computer terminology to classes in programming languages, these courses—which typically meet for only two weeks—offer you the essential knowledge you need to successfully complete your computing tasks. The article on short courses elsewhere in this *Newsletter* describes some of our fall short courses in more detail.

Once again, welcome—or welcome back—to UCC. If we can answer any of *your* questions about computing at the University of Minnesota, please call our HELP-line, 376-5592. Your questions are our concerns.

Running on the CYBERs: Charge Uniformity Across Machines

To the question, "Will the same job accumulate the same SRU totals when run on different UCC CYBERs?", the answer is *yes* for an average job, but usually *no* for a specific job. A System Resource Unit (SRU) is the basic unit for our CYBER billing purposes. For a total job, the SRU formula consists of selected multipliers times central processor seconds, disk and tape transfers, and average central and extended memory, to produce the SRU value (see Exhibit 1).

When the same job is run on CYBERs with different central processors, M1, the multiplier of CP seconds, is the only multiplier that need be changed for that job to accumulate the same number of SRU units. When the Control Data Operating System was switched to SRU accounting, only our CYBER 74 needed an M1 multiplier, so the value 1.0 was selected. (Until now, MERITSS service has been based on port use rather than system resource use, so the M1 multiplier has not been significant for MERITSS billing.)

We added a dual CP CYBER 172 to our system in 1978 for data base and interactive processing. Extensive benchmarking showed that the CYBER 172 CP was about 50 percent of the speed of the CYBER 74 (.4848 exactly) as it processed those interactive jobs. This CYBER 172 multiplier did not reflect FORTRAN jobs with heavy matrix and function calculations. When we added the dual CP CYBER 730 several years ago, we did additional benchmarking. The two-cycle memory delay (a 9 percent degradation) for the second processor (CP1) meant that the average job was 4.5 percent slower when run exclusively on the second CP.

Since users did not have control over which CP would run their jobs, we added additional multipliers for each CP to account for the different speeds on dual

CP CYBERs. Early this spring, we upgraded the dual CP CYBER 172 MERITSS system (ME) to a dual CP CYBER 174. We plan to replace the dual CP CYBER 730 (CA) with a single CP CYBER 845 in late December.

Control Data and *Computerworld* have for several years published the speed rating in million instructions per second (MIPS) for average FORTRAN jobs. Table 1 shows those CDC CYBER ratings, the resulting speed relative to the CYBER 74, and the SRU multiplier used in our accounting system.

But design differences among CYBER machines involve more than instruction processing speed. For most CYBER programs, the data transfers between central memory and the fast registers, and decisions that transfer to a new memory location generate half the executable instructions. Thus significant improvements in

memory access (faster memory or intermediate cache as on the CYBER 845 or instruction look-ahead, as on the CYBER 825) mean that a certain CYBER CP may process non-floating point problems faster than the official MIPS rating.

Other CYBERs (74, 76, 175, 176, 750, 760) are designed with parallel processing units that can speed up FORTRAN matrix and function evaluation by factors of two over the official MIPS rating. To check out these differences between the 825 and our other CYBERs we executed a set of five FORTRAN jobs (matrix, function, and integration), two FORTRAN jobs (sort and graphics), plus three COMPASS assemblies. We then took the compilation time of the seven FORTRAN jobs as a separate set. Table 2 shows the SRU percentage change for these three sets for the 825 vs. the 174,

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$$SRU = M1 \times CP + M2 \times IO + (M3 \times CM + M4 \times EC) \times (M1 + CP + IO)$$

where

CP = central processor seconds
IO = disk and tape transfers plus permanent file accesses
CM = average central memory space
M1, M2, M3, M4 = multipliers

Exhibit 1. The SRU formula.

		MIPS		Relative Speed to CYBER 74		UCC Billing Multiplier	
System	Mnemonic	CP0	CP1	CP0	CP1	CP0	CP1
CYBER 845	(future CA)	5.40		1.64		1.60	
CYBER 74	(old CB)	3.30		1.00		1.00	
CYBER 730	(CA)	2.30	2.19	.697	.666	.68	.65
CYBER 174	(ME)	2.10	2.00	.636	.606	.63	.60
CYBER 825	(CB)	1.80		.545		.53	
CYBER 172	(old ME)	1.40	1.35	.424	.409	.4848	.4848

Table 1. CYBER MIPS, Relative CYBER 74 speed, billing multiplier

Job Set	825 vs. 174	825 vs. 730	825 vs. 74
5 FTN5 (matrix, function)	0%	+1%	+53%
2 FTN5 (sort, graphics), 3 COMPASS	−28%	−27%	−42%
7 FTN5 (compilation)	−31%	−29%	−28%

Table 2. SRU changes on 825 vs. other CYBER CPs

730, and 74.

The table indicates that the CYBER 825 will have SRU totals for FORTRAN matrix and function execution very similar to those on the 174 or 730, but will require 53 percent more SRUs than the same job run on the 74. (The CRAY-1 is our economical matrix and function evaluation system, since it has parallel and vector units for these problems. Often such programs have a reduction of 50 to 75 percent in costs compared with the CYBER 74.)

In the other sets the improved memory speed and instruction look-ahead of the 825 means that compilation, COMPASS assembly, and non-floating point problems should require 27 to 42 percent fewer SRUs for the same job.

(*Lawrence A. Liddiard*)

A Note to COMPASS Programmers

Since memory improvements are one of the best ways to make faster CYBERs, COMPASS programmers should be aware that working programs on the CYBER 74 and 730 that changed instructions two or three words beyond the current P register will fail on the CYBER 825 and 845 due to instruction look-ahead. The control statement **MACHINE(EP=ON)** will allow such programs to run without change, but at a substantial time penalty. You should change such programs in those areas by modifying a separate instruction stream not in the current P range and by doing a JP command to that stream to void the instruction look-ahead. Such changes will ensure that current production programs continue to run on advanced CYBER hardware.

(*Lawrence A. Liddiard*)

System News/Notes

Computer Store

The UCC Computer Store has taken a giant step forward by moving downstairs. We are now in 20 Experimental Engineering (basement level). If you enter through the front door, just go down the stairs—you can't miss us. And since the Store is at ground level to Union Street, bulk pickup of paper or diskettes is easier.

Our hours have also been extended. The Store is now open from 9 a.m. to 4:30 p.m. Monday through Thursday and from 9 a.m. to 3 p.m. Friday.

Since we have a larger area to service you, we'll have additional stock of paper, disks, ribbons, manuals, and software at any given time. The new manuals for fall quarter include:

Guide to CYBER Computing
This supercedes and combines information from last year's *CYBER Interactive Guide* (red book) and *CYBER Batch Guide* (black book). It is the basic book for anyone using our CYBER systems.

Guide to Text Processing and Liberal Arts Computing
This guide assumes a basic knowledge of computer terms and concepts; it outlines applications for text processing and computing in the liberal arts.

We also sell access cards for the Folwell Hall and Architecture micro labs and for the new Microcomputer Research Lab in Shepherd Labs (see the related article in this issue of the *Newsletter*). (If you plan to do your computing in the West Bank Microcomputer Instructional Lab, you must purchase your lab card from the west bank bursar. The West Bank Lab card is the *only* card accepted at the West Bank Lab in 167 Social Science Tower.)

And this fall, we're trying an experiment: if you want to avoid the rush, you can send us a mail order. Get a copy of WRITEUP(STORE = FORM2) from the CYBER system, fill it out (include your user number), and mail it to us:

UCC Computer Store
227 Experimental Engineering
208 Union Street SE
Minneapolis, MN 55455

We'll process the order and set it aside; you can then stop in and pick it up. This service is *only* for orders charged to your user number.

Registration for UCC Short Courses now takes place *inside* the Store. For all your computing needs, stop in at the UCC Computer Store. We welcome your patronage and your suggestions.

(Marvin Mohr)

Consulting

THE MAIN HELP-LINE: 376-5592

Most of your communications with the Computer Center will be indirect: you will "talk" to a computer. You'll submit batch jobs or, more often, use our interactive facilities to tell our systems what you want done. This is usually a smooth process, as you and the computer confer to complete your tasks.

When such transactions break down, however—whether because of an error, a misunderstanding, or a lack of information—call our HELP-line, 376-5592, for assistance. The HELP-line provides direct contact with UCC. About 80 percent of the time, we can solve your problem immediately. In other cases, we may have to research it; this may involve close examination of your data or program, writing a test program, or invoking other methods of research. Our goal is to identify your problem, help you solve it, or solve it ourselves and let you get back to your main task.

We are currently refocusing our energies on large-scale, centralized computing: the job that, historically, we have done best. The HELP-line's part in this is to ensure that your transactions with our large-scale machines run smoothly.

In the past, the HELP-line was staffed by members of all UCC divisions. This year, in contrast, it is staffed by a small group whose main job is to solve problems in a general sense. By keeping the group small, we can exchange information, advice, and expertise very efficiently. We can get to know you and your typical problems very well, since we deal with them on a day-to-day basis. Yet we still have access to in-depth experts in the other UCC groups should the need arise. We hope you will not hesitate to call us whenever you have a question about or problem with our systems.

(Dennis Lienke)

IN-PERSON CONSULTING

General consulting provides in-person assistance on all our systems in 140 Experimental Engineering from 10 a.m. to 4 p.m. weekdays during the quarter. Evening hours are 7 to 9 p.m. Monday through Thursday for those of you who work after business hours.

Most problems you encounter can be dealt with by the general consultants any time consulting is open. If a problem is fairly complex, check the expertise code under each consultant's name as listed in WRITEUP(CONSKED) for specialized service. We ask you to bring your program listing, output, and computer job dayfile when you seek help. This makes the problem-solving process easier for everyone involved.

Special consulting is available for non-traditional computing and text/word processing from 1 to 3 p.m. Monday through Friday in 124 Shepherd Labs. And nearby, in 139 Shepherd Labs, you can find answers to your questions about microcomputing from 10 a.m. to noon and 2 to 4 p.m. Monday through Friday.

We also provide phone consulting: see the list of phone numbers on the penultimate page of this *Newsletter*.

Microcosm

THE MICRO SYSTEMS GROUP

UCC's Micro Systems Group provides support for microcomputer users within the University community. We develop general purpose software utilities and tools for microcomputers and also write custom software on a contract basis. We developed a communications program (COM) that allows microcomputers to communicate with, and transfer text files to and from, our CYBER and VAX computers. Other general purpose programs include a graphics terminal emulator (SIMTEK) and utilities for use with some of the popular microcomputer text processing packages. You can purchase these programs at our Computer Store, 20 Experimental Engineering. Our custom software includes computer aided instruction (CAI) programming for fields such as law, the humanities, and languages, including Greek, Latin, German, and Dutch.

In addition to developing software, we offer consultation on microcomputer applications, provide information on microcomputers currently available through University bids, and answer other questions about microcomputers by telephone (dial DR MICRO, 376-4276) or on a walk-in basis in 139 Shepherd Labs. Consultation is available Monday through Friday from 10 a.m. to noon and 2 to 4 p.m. Microcomputers that we have detailed knowledge of include the IBM-PC, Zenith Z-100, Xerox 820, Terak 8510, and Apple II. We also have extensive first-hand experience with the CP/M, MS-DOS, UCSD, and MMOS operating systems and many of the commercially developed applications packages that run under these operating systems.

Microcomputer Systems staff also teach UCC Short Courses on microcomputers and microcomputer software throughout the year. If you are interested in a class tailored to your specific needs, we can also provide that service on a contract basis. We have taught classes about WordStar, DataStar, Access-80, VisiCalc, Su-

perCalc, and dBase II for groups ranging from 5 to 400 people.

For more information about the Microcomputer Systems Group products or services, please call our Micro HELP-line (376-4276).

(Mark McCahill)

MICROCOMPUTER RESEARCH LAB ESTABLISHED

UCC's Microcomputer Systems Group has established a Microcomputer Research Lab to provide public access to state of the art microcomputers for the University community. This lab will be of special interest to those who want to get some hands-on experience with microcomputers before buying one, or users who only need access to a microcomputer for a short period of time.

You can, for example, use one of our micros to transfer information from a floppy disk to one of our mainframes (CRAY, CYBERs, or VAX). Or you may want to use a letter-quality printer to print a document you created with WordStar or FinalWord. You may want to try InfoStar or dBase II to see if the packages are useful to you. Or you may simply want to spend some time with a microcomputer to see what all the fuss is about.

We are stocking the lab with microcomputers that are currently popular at the University and are supported by the Micro Group. These are the machines that potential microcomputer owners at the University are most likely to buy. This also simplifies some of the floppy disk compatability problems for everyone involved. The staff of the Micro Group have used all the machines extensively. Thus, we should be able to give you more than adequate help if you run into any difficulties. The equipment in the lab will consist (at least initially) of:

1 Xerox 820
1 IBM-PC
1 Zenith Z-100
1 Apple II+
1 Terak 8510
1 Epson FX-80 dot matrix printer
1 Diablo 630 letter quality printer
2 1200 baud modems

We have not received all the equipment as this issue of the *Newsletter* goes to press, but we expect that most, if not all, of it will be in place by the time you read this.

Hours, Location, and Other Details

The lab is located in room 133 Shepherd Labs (across the hall from the Micro HELP-line) and is open during HELP-line hours (10 a.m. to noon, 2 to 4 p.m.). To use this lab, you must have a Microcomputer Research Lab card; these are available at our Computer Store, 20 Experimental Engineering. (This card is *not* the card you need for the Folwell Hall and Architecture micro labs.) The price for the card varies depending on how much time you want to purchase: to help defray the costs of the lab, we charge $5 per hour for its use. Once you have your Research Lab card, you sign up for machines, check-in, and check-out at the Micro HELP-line office.

If you want to reserve time on a machine, or want more information on hardware and software currently available in the Micro Research Lab, call the Micro HELP-line (DR MICRO, 376-4276).

(Mark McCahill)

NEW SOFTWARE FOR THE IBM-PC AND ZENITH Z-100 MICROS

The Micro Systems Group is pleased to announce that the SIMTEK package is now available for the Zenith Z-100. A new version of SIMTEK is also available for the IBM-PC. The SIMTEK program emulates a Tektronix 4010 series graphics terminal. This means that you can use your microcomputer to view graphics output from TELL-A-GRAF, DISSPLA, or any other software packages that can generate output for a Tektronix terminal. SIMTEK should be of particular interest to anyone who creates graphics on the VAX, CYBERS, or CRAY and wants to preview the output before sending it to a hard copy device.

In addition to allowing a microcomputer to act as a graphics

Microcosm to 112

puter to Read English Sentences," at 2:15 p.m. Thursday, November 10, in 70 Ford Hall.

Later this year, speakers from the Institute of Child Development, the Center for Ancient Studies, and the Department of Near Eastern and Jewish Studies will discuss their work. These lectures will be announced as they are scheduled.

We welcome everyone with an interest in these topics to attend. The series promises to be both fascinating and provocative.

(Lenief Heimstead)

CONSULTING SERVICE

We now provide consulting for non-traditional computing and text/word processing. Special consultants are available from 1 to 3 p.m. Monday through Friday in 124 Shepherd Labs. We can help you get started on a project, answer your questions about on-going work, or refer you to other consulting services when that is appropriate.

Phone consulting is available during the same hours at 376-2944. This service is new this academic year, and we would appreciate your comments and suggestions about it.

(Lenief Heimstead)

HUMANITIES COMPUTING LAB

Our computer lab in 14 Folwell Hall has been designated the Humanities Computing Lab (although people in any field are welcome to use it). Facilities in this lab serve the needs of the non-traditional computing user. The lab contains a public access research cluster for text processing and graphics work on the VAX/VMS system, standard access to our CYBER and CRAY systems, and Terak microcomputers for word processing and CAI (computer-assisted instruction).

Consultants experienced in non-traditional computing are available during the lab's regular hours: 8 a.m. to 10 p.m. Monday through Friday, 10 a.m. to 6 p.m. Saturday, and 4 p.m. to 10 p.m. Sunday. If you have been

Non-Traditional Computing

We at UCC have given the label "non-traditional" to computing that involves non-numeric data. We place such things as the linguistic analysis of texts in this category. Such computing often overlaps with what is called "text processing," since in many cases the facilities you use for computer-based document preparation can also be used for text analysis.

We provide special services for those of you in non-traditional computing. Some of them are described below. In addition to those we mention here, many general services (text processing,

short courses, etc.) may also be of interest to you.

LECTURE SERIES

We will sponsor a 1983-84 series of monthly lectures on topics in non-traditional computing. The speakers will be members of the University community who are actively involved in projects in this area. Their topics will range across the academic fields and computer applications that are part of this expanding computing area.

Tom Rindflesch of the Department of Linguistics will explore the process of "Getting the Com-

discouraged in the past when trying to talk with a consultant during busy periods such as mid-quarters and finals, take heart! We now provide extra personnel at those times to alleviate this problem.

MAIL AND BIBLIOGRAPHY DATA BASE

BIBMAIL is a new package of programs on our CYBER CA/CB systems that creates and maintains a data base of bibliographic references or mailing addresses. With BIBMAIL, you can retrieve references or addresses by using logical combinations of keywords of your choice, and you can write the items retrieved to your terminal or to a file.

Files of bibliographic material can be written with embedded Prose formatting commands to produce a bibliography in a standard format. Files of address items may be printed in address format on two sizes of stick-on mailing labels. With both bibliographic references and addresses, space is provided for personal annotations of any kind. Although it can read references and addresses from a file, BIBMAIL is designed for interactive use; it uses very explicit prompts.

To access BIBMAIL, log on to one of the CYBER systems and enter:

FETCH(BIBMAIL)
BIBMAIL.

Let the prompts guide you from there. For more information about BIBMAIL, see:

WRITEUP(BIBMAIL)

or call our Non-Traditional Consulting Service, 376-2944, from 1 to 3 p.m., Monday through Friday.

(*Larry Daasch*)

	Usage	Cumulative Grant	User Cost
Previous policy	$ 150 (100 of 03)	$ 0	$150
	1000 (666 of 03)	424	576
	1500 (1000 of 03)	675	825
New policy	150 (100 of 03)	120	30
	1000 (666 of 03)	970	30
	1500 (1000 of 03)	970	530

Table 1. User costs for processor and supply charges.

Grants for Research

UCC GRANTS FOR 1983-84

A new UCC research grants policy, initiated in July, provides funds for graduate thesis and unfunded faculty research. After payment of an initial $30 fee, all costs (including such things as disk storage, printer and plotter output, connect time, and terminal cluster use) up to $1000 are covered by these grants. Table 1 compares the old and new grants policies. For more information on these grants, see the August *Newsletter*.

NATIONAL SCIENCE FOUNDATION

The National Science Foundation supports basic and applied research in information science and technology in three program areas. Public and private organizations are eligible for grants in these areas. In addition, a separate program has been established for new researchers: the Special Research Initiation Awards for New Investigators. These program areas are defined as follows:

● INFORMATION SCIENCE Research areas include the definition of information systems and the measurement of such qualities as quantity, complexity, meaning, utility, and value. Special emphasis is placed on research on human information processing.

● INFORMATION TECHNOLOGY These studies are concerned with research on the design of advanced information systems. This program allows researchers to translate the results of basic research into useful applications.

● INFORMATION IMPACT This program supports projects that study the application of information science to economic analysis, the role of information as a production input, and the modeling of information flow in the economy.

● RESEARCH INITIATION AWARDS This program provides support to new researchers. Applicants should have received their doctorate within the last five years and may be first time investigators.

Applications for regular research grants may be submitted at any time. The fiscal 1984 deadlines for the research initiation awards program are February 8, 1984 and August 8, 1984. For additional information, contact:

National Science Foundation
Division of Information Science and Technology
1800 G Street NW, Room 336
Washington, DC 20550
(202) 357-9572

DEPARTMENT OF EDUCATION

The Education Department is accepting applications for new projects and non-competing continuations funded under its Undergraduate International Studies and Foreign Language Program. These grants provide assistance to institutions of higher education for planning, developing, and implementing programs to improve undergraduate instruction in international studies and foreign languages and to programs operated by public and nonprofit agencies designed to achieve the same goals.

While the focus of this program is on foreign languages and

Text Processing

PRINTER UTILITY PROGRAMS

Two MMOS utility programs, MXDrive and DECDrive, will be added to the text processing disk this fall. They allow you to select special printing features on the Epson MX-series of printers and the DECwriter III and IV. Eight European character sets will also be included to allow text editing and printing in any of eight languages. The modified disk will be available at the UCC Computer Store, 20 Experimental Engineering.

(Paul Thayer)

CYBER Notes

RUNNING OUT OF TIME ON THE CB

Our CB computer, formerly a CYBER 74, became a CYBER 170-825 on September 11. The central processing unit (CPU) speed of the 825 is about half that of the 74. We have adjusted the SRU charging unit so that your costs will remain approximately the same despite the fact that jobs now require twice as much CPU time.

If you use the CB system, double your time estimates for your jobs. These estimates appear as the T parameter in the JOB statements for batch jobs or in the argument on the SETTL statement. For example, you should change:

JOB (T50)
to
JOB(T100)
or change the statement:
SETTL(40)
to
SETTL(80)

NEW SPICE VERSION

Version 2G.5 of the SPICE integrated circuit analysis package was installed on our CYBER systems on September 6. (This version is already available on the CRAY.) WRITEUP(SPICE) now documents this version.

Graphics

DISSPLA 9.0 ON THE CRAY

DISSPLA version 9.0 is now available on the CRAY. For details, see:

WRITEUP(GRAFGEN = NEWS)

on the CYBERs, or type:

[WRITEUPS.GRAPHICS.GENERAL]NEWS.LIS

on the VAX.
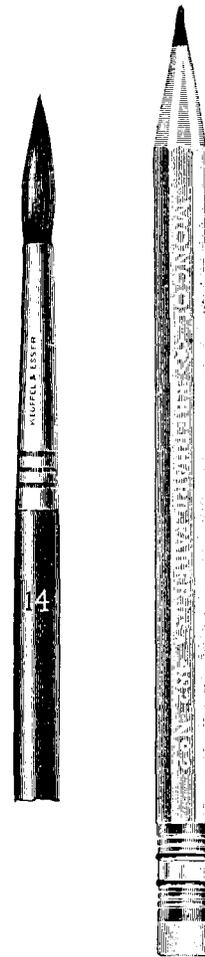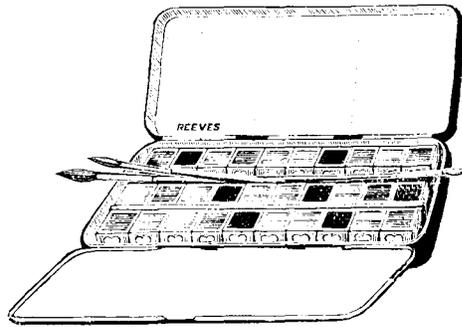
Engineering Services

The Engineering Services division of the University Computer Center is concerned primarily with maintaining and servicing a wide variety of equipment purchased by UCC for the instructional needs of the University. In addition, we arrange maintenance agreements with University departments to service terminals, microcomputers, and minicomputers. We also maintain equipment on a time and materials basis, though we discourage this because it is difficult to allocate staff and other resources.

We act as a bidding agent for a number of low speed terminals, microcomputers, and data communications equipment. Contracts for six months or one year are established through the University Purchasing Department with a number of vendors. Any University department can then order equipment from these contracts without going to a separate bid procedure.

We provide system and hardware consulting for the University community, with a special focus on microcomputer and minicomputers. There is no charge for any consultation less than one-half hour. We negotiate rates for more extended consultations.

Engineering Services also maintains a technical library. It consists of documentation for specific terminals and microcomputers used within the University, reference catalogs for integrated circuits and other electronic components, vendor source directories, and other material related to the maintenance of terminals and computer equipment.

We constantly expand the variety of equipment we maintain and try to provide a challenging work environment for our technicians. If you are interested in our services or you would like more information, call 376-8171.

West Bank Notes

WEST BANK MICRO LAB MOVES

The West Bank Microcomputer Instructional Lab has moved from 93T Blegen Hall to 167 Social Science Tower. This lab, which is intended primarily for instructional use by students, now contains:

7 Apple II microcomputers
5 Zenith Z-100 micros
1 Xerox 820 micro
1 NEC letter quality printer
1 Diablo letter quality printer
3 Epson dot matrix printers

An IBM-PC will be added to the lab during fall quarter. Software for word processing, data base management, spread sheets, communications, graphics, and other applications is also available. A one-hour time limit is enforced for use of the equipment in this lab when it is in demand.

(Doug Lund)

LAB CARDS

Effective fall quarter, anyone who uses the West Bank Micro Instructional Lab must have a lab access card. Cards are available from the west bank bursar for $10 per quarter. This card is valid *only* for the West Bank Micro Instructional Lab; cards purchased for other micro labs are not valid for the West Bank Lab.

(Doug Lund)

All Systems Bulletins

FOR SALE

The Agricultural Extension Service has some single sided, single density, 5-1/4" Nashua floppy disks for sale for $1.25 each. Anyone interested in purchasing these disks should call Vicki Weinkauf, 373-1621, or stop in at 20 Coffey Hall on the St. Paul campus.
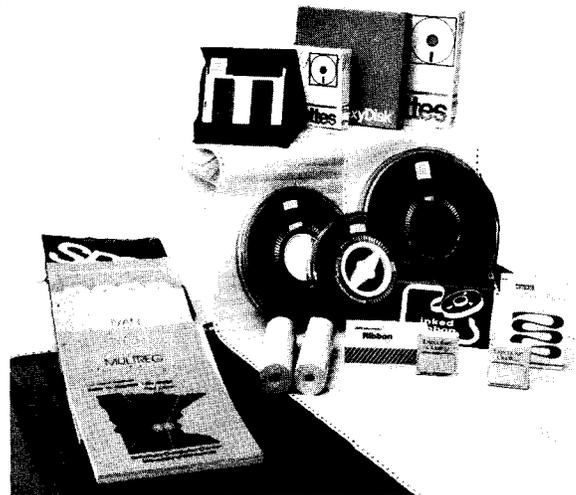
SIR/DBMS CONVERSION DATE SET

Our current version of the SIR data base management system on the CYBER systems is no longer being supported by SIR, Inc. We will replace Version 1.1 with Version 2.1.1 on October 25, 1983. The two versions are not compatible. You must convert your files from one version to the other using the TRANSPORT FILE utility if you choose to use the new version. You can get information on this utility by calling the Data Base HELP-Line (376-1761, 1 to 3 p.m., Monday-Friday) or stopping in 208 Experimental Engineering on the Minneapolis campus.

The future version of SIR is now available with the control statements:

FETCH(SIR)
SIR.

We encourage you to access this version now and re-create your data bases with the next release of SIR. SIR Version 2 is a significant upgrade of SIR Version 1. Some commands are no longer valid. They include FOR EACH REC, FOR EACH CASE, MOVE VAR LIST, WRITE IF, and SELECT statements. Replacements for these commands are explained in the document *Converting from SIR/DBMS 1.1 to SIR/DBMS 2*, available in 208 Experimental Engineering, or by calling the Data Base HELP-Line.

After the conversion, you will access Version 1 with the control statement **SIR1**. You will access Version 2 with the control statement **SIR**. FETCH(SIR) will no longer be necessary.

SIR USERS' GROUP MEETING

A SIR Users' Group has been formed at the University Computer Center. The group includes both experienced and beginning SIR users. They have met over the last few months to discuss various aspects of the SIR data base management system. Typical discussions center around problems they encounter when writing retrievals in the new version, or ways to work around bugs in the software.

The Users' Group is an informal way to exchange ideas. All SIR users are invited to attend the meetings. The next one is scheduled for 3:30 p.m. November 16 (see the November Newsletter for the location).

If you'd like to be put on the mailing list for these meetings, write to Jerold Hahn (the unofficial leader and organizer of the group), 513 North Central Forestry, 1271 Raymond Avenue, St. Paul campus, St. Paul, MN 55108, or call the Data Base HELP-Line at 376-1761 (1 to 3 p.m. Monday-Friday).

SYSTEM 2000 CONVERSION DATE

The future release of System 2000 (Version 2.80) will become current on October 4, 1983. The current release (Version 2.60) will become a PAST version. Data bases that have been created under Version 2.60 are upward compatible with Version 2.80. You need not make any changes to your data bases to access them with the interactive language. You *must*, however, change the terminator used to end commands from a colon (:) to a semicolon (;).

This change in the command terminator will also affect strings of multiple commands separated by colons. The change complies with the new documentation produced by the Intel Corporation.

PLI programs must also be recompiled with the PLEX precompiler.

New features include a WHERE-clause CONTAINS operator, which allows text search within character values. Disjoint data sets can be accessed in Report Writer,

with the REPEAT FOR <SR> and END PATH WITH <SR> statements. Release 2.80 contains new terminology, but the old terminology is still supported. NAME item types have been changed to CHAR item types. REPEATING GROUPS (RG) have been changed to SCHEMA RECORDS (SR).

These changes and others are discussed in the *System 2000 Newsletter - Release 2.80* available for one dollar in the Computer Store. We urge everyone who uses the current version to pick up a copy of this newsletter. All documentation sold in the Computer Store is written for Release 2.80. We have the next release available as a FUTURE version. To access it now, use the control statements:

FUTURE(S2000)
S2000.

After the conversion, the control statement **S2000** will access the Version 2.80 software. To access Version 2.60, use:

PAST(S2000)
S2000.

SYSTEM 2000 GROUP TO MEET IN MONTREAL

The Association of System 2000 Users for Technical Exchange (ASTUTE) will hold its fall meeting in Montreal, Quebec October 19 to 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 is now available. Direct your questions about the organization to Cheryl Vollhaber at UCC (376-1761, from 1 to 3 p.m. weekdays) or to ASTUTE President Roberta A. Armstrong (373-2106). If you would like to be on the ASTUTE mailing list, call Dr. Armstrong.

(Cheryl Vollhaber)

terminal, this version of SIMTEK can be used to record graphic images. The graphics information sent to SIMTEK can be stored in disk files on your microcomputer. These disk files can be re-displayed on the microcomputer's screen at your convenience.

SIMTEK runs under the Z-DOS operating system on the Zenith Z-100 and the PC-DOS operating system on the IBM-PC. Unfortunately, the resolution of the IBM and Zenith graphics screens is not as good as a Tektronix terminal. The Zenith has 640 x 256 pixel resolution, the IBM has 640 x 200 pixels, and the Tektronix has 1024 x 780 pixels. A scaling factor is used to map from Tektronix resolution to the microcomputer's resolution. In most cases, the microcomputer has adequate resolution to view Tektronix graphics. SIMTEK is available at our Computer Store for $50. We will provide you with free up-

dates for one year from the date of purchase if you bring the distribution disk and your receipt to the Micro HELP-line (139 Shepherd Labs) during HELP-line hours (10 a.m. to noon, 2 to 4 p.m.).

If you are considering purchase of the SIMTEK package and want to know what hardware is required, or are interested in seeing a demonstration of SIMTEK, contact the Micro HELP-line (376-4276).

(Mark McCahill)

LAB CARDS

Anyone who uses the microcomputer labs in 14 Folwell Hall and 160 Architecture must have a lab card. You can purchase a card at UCC's Computer Store. The charge is $10/quarter.

Because of a change in lab fee policies, anyone with a card from fall quarter 1982 or winter quarter 1983 may exchange it for a card for this fall or winter at no charge.

international issues, these grants touch on a wide variety of subjects, including computers. The department encourages new grant applications for projects that use computers to implement improved methods of teaching foreign languages and collecting and analyzing information about critical international issues.

Obtain application forms and further information from:

Susanna Easton
International Studies Branch
International Education Programs
U.S. Department of Education
Room 3916, Regional Office
Bldg. 3
7th and D Streets SW
Washington, DC 20202
(202) 245-2794

(*Federal Grants and Contracts Weekly*)
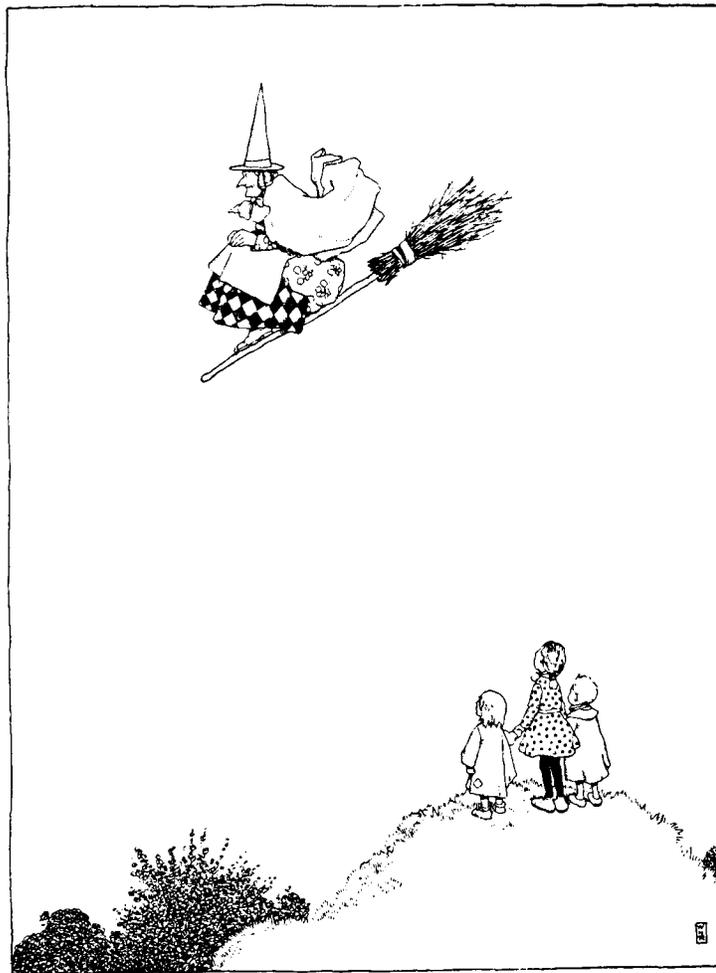
1983 Fall Quarter Short Courses

This fall, UCC will offer a full complement of both introductory and advanced short courses. These classes are open to anyone interested in computing. Fees are assessed on the basis of your status at the University: student fees are the lowest, followed by those for University staff members; non-University participants pay the highest fees.

If you have no computing experience, two courses should prove useful to you. They are also prerequisites for most of our other short courses.

An Introduction to Computer Terms supplies the meanings and uses of basic computer terms from a wide range of areas that includes software and hardware, applications, languages, and data communications. This should be the first course any novice user takes.

A Taste of Computing provides a five day overview of computing at UCC. The first day examines our facilities and services; subsequent sessions consider programming languages, statistical packages, data base management systems, graphics, text processing, and non-traditional computing.

Three courses focus on the particular computers and operating systems available at UCC. Once you know what kind of computing you are likely to do, one or more of these courses should prove helpful.

NOS (Network Operating System) introduces the operating system used on the CA, CB, and MERITSS machines; most of our users do their computing on one of these.

Introduction to the CRAY-1 and COS examines our CRAY-1 supercomputer and its operating system. The CRAY is especially suitable for large scale computing.

Introduction to VAX/VMS offers an overview of the VMS operating system on our VAX computer. People whose principal computing interests lie in the areas of

INTRODUCTORY COURSES

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

010	Introduction to Computer Terms (Jerry Larson)	
	Oct 3-7 (MWF)	3:15-5 p.m.
020	A Taste of Computing (staff)	
	Oct 10-15 (M-F)	3:15-5 p.m.
050	NOS (CYBER operating system) (Tom Kovarik)	
	Oct 17-Nov 2 (MWF)	3:15-5 p.m.
070	Introduction to UCC Graphics (Carol Saylor & John Cornelison)	
	Oct 17-24 (MWF)	3:15-5 p.m.
060	Text Processing Overview (Elaine Collins)	
	Oct 24-26 (MW)	3:15-5 p.m.
080	Introduction to Microcomputers (Mark McCahill)	
	Oct 25-Nov 8 (TTh)	3:15-5 p.m.
130	XEDIT (Michael Dunham)	
	Nov 8-17 (TTh)	2:15-4 p.m.
180	Introduction to the CRAY-1 and COS (Tom Kovarik)	
	Nov 28-Dec 2 (MWF)	3:15-5 p.m.
040	Introduction to VAX/VMS (Linda Merims)	
	Nov 29-Dec 15 (TTh)	3:15-5 p.m.

ADVANCED COURSES

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

550	SIR (data base system) (Lydia Yomtoubian)		
	Oct 3-14 (MWF)	3:15-5 p.m.	$25-$35-$70
510	System 2000 (data base management) (Cheryl Vollhaber)		
	Oct 31-Nov 18 (MWF)	3:15-5 p.m.	$30-$40-$50
580	WordStar (Simin Hickman)		
	Oct 18-20 (TTh)	2:15-4 p.m.	$20-$30-$50
585	EDT/Scribe on the VAX (Elaine Collins)		
	Nov 7-16 (MWF)	3:15-5 p.m.	$30-$45-$65
530	SPSS (statistics package) (Bruce Center)		
	Nov 14-16 (MTW)	2:15-4 p.m.	$20-$30-$55
570	TELL-A-GRAF and DISSPLA (Carol Saylor & John Cornelison)		
	Nov 28-Dec 9 (MWF)	3:15-5 p.m.	$30-$45-$75
650	Beginning Pascal		
	Oct 31-Nov 11 (MWF)	3:15-5 p.m.	$25-$40-$60
660	Beginning COBOL (Robert Jarvis)		
	Nov 14-Dec 2 (MWF)	3:15-5 p.m.	$30-$45-$75

HOLIDAYS: Thursday and Friday, November 24 and 25, are official University holidays. No classes will be held.

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.

graphics and text processing find VAX/VMS a congenial system.

For those of you interested in microcomputers, our *Introduction to Microcomputers* may be a worthwhile investment. This general introduction covers terminology, a short history of both hardware and software, and an overview of commercially available machines, peripherals, and software.

Introductory material on graphics and text processing is offered in *Introduction to UCC Graphics* and the *Text Processing Overview*. For those of you who plan to work on our CYBER systems, the *XEDIT* course provides an extensive introduction to the XEDIT text editor.

Once you've learned the basics of computing at UCC, you can move on to our advanced courses. These include introductions to various programming languages, data base management systems, applications packages, editors, and formatters.

Wherever you are in your computing education, UCC has a course for you. For additional information about any of these classes, call Jerry Stearns, 376-8806.

ST. PAUL COMPUTER CENTER SHORT COURSES

The St. Paul Computer Center (SPCC) will offer several short courses during fall quarter (see Exhibit 1). The User Orientation introduces new and prospective users to the SPCC facility. SAS covers the Statistical Analysis System, a comprehensive statistical package. MUSIC and CMS introduce two interactive/batch systems available at SPCC.

The User Orientation class will meet in B35 COB on the St. Paul campus; no registration is

User Orientation	Oct 13 (Th)	3-5 p.m.
SAS	Oct 17-21 (MWF)	3-5:15 p.m.
MUSIC	Oct 24-28 (MWF)	3-5:15 p.m.
CMS	Oct 25 (T)	3-5:15 p.m.

Exhibit 1. St. Paul Computer Center fall quarter short courses

required. To register for the other courses, obtain and complete a short course registration form from SPCC (50 Coffey Hall; 373-0987) and return it to 50 Coffey Hall before the class begins.

Most short courses now have modest fees associated with them and require full payment before they begin. No refunds are made once a class begins. Refunds are made in the same form as the fee was paid—check, journal voucher, SPCC account credit.

If you have questions about SPCC short courses, fees, or registration, call Diane Suski, 373-0987.

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 376-2944
  1-3 p.m., Monday-Friday
TELL-A-GRAF/DISSPLA 376-2663
  1-3 p.m. Tuesday, Thursday
Text Processing 376-2944
  1-3 p.m., Monday-Friday
Contract Programming 376-1764
Data Base Applications 376-1764

EDUNET Liaison 373-7745
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/CB	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
East Bank				*West Bank*			
				BlegH 25		*	
Arch 160		X	X	BlegH 90	X		
CentH		X		BlegH 140		X	
ComH		X		MdbH		X	
DiehlH 270, 207		X		OMWL 2		X	
EltH 121, 125		X		SocSci 167			X
EltH N640	X						
FolH 14, 14a	X	X*	X	*St. Paul*			
LindH 26	X	X					
MechE 308		X		BaH		X	
Physics 69		*		ClaOff 125	X	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

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

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UNIVERSITY OF MINNESOTA
EAST BANK
117 PLEASANT STREET SE
MINNEAPOLIS   MN   55455

October 1983