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Director: Peter C. Patton  
Editor : Naomi Miner

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

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## system overview: the next few months

In May 1981 we will upgrade the Cybers at Lauderdale. After the upgrade we will operate three large scale computers: a Cyber 172, dual CPU with 198K words of central memory, 940 million characters of mass storage, and 290 asynchronous ports, providing interactive instructional computing; a Cyber 170-730, dual CPU with 198K words of central memory, 5 billion characters of mass storage, and 130 asynchronous ports providing interactive research and public service computing; and a Cyber 74 with 131K words of central memory, 5 billion characters of mass storage, 50 asynchronous ports, twenty-two 2400 and 4800 baud synchronous ports, and three 40,800 baud synchronous ports providing interactive job submission and batch computing. Each computer has two 800/1600 bits/inch, 9-track tapes of its own, and shares a 250K word extended core storage system. The Cyber 170-730 and 74 will share a two channel tape controller with two 7-track and five 1600/6250 bits/inch 9-track tape units.

### interactive processing to leave Cyber 74

This summer we plan to remove timesharing from the Cyber 74. This will not be as drastic a change for those of you who use the Cyber 74 as it might at first sound. When the Cyber 730 is installed later this spring, all the permanent files that exist on the Cyber 74 will become a "shared permanent file family," CDC terminology for files shared between the Cyber 74 and the Cyber 170-730. There will be no extra charge for the shared files.

All of the interactive processing ports removed from the Cyber 74 will be added to the 170-730. We will still be able to access files on the Cyber 74 from either batch jobs or from interactive processing sessions. So you may ask, why do we want to remove interactive processing from the Cyber 74 at all?

Removing interactive processing will provide an additional 24K words of central memory on the Cyber 74 and will lessen the demand on disk channels to support job swapping required for interactive processing. You will see greater field length limits for batch processing on the Cyber 74 and better response time for interactive processing on the Cyber 170-730. Since we will have a purer batch processing machine we will be able to easily replace the Cyber 74 by another batch machine.

When we remove interactive processing from the Cyber 74, you will have to know how to choose which set of permanent files to use at log-in time. We will explain this uncomplicated change in the log-in procedure in next month's Newsletter.

## VAX-11/780 purchases

In addition to the Cyber 170-730, we have purchased two VAX-11/780 computers from Digital Equipment Corporation (DEC). The VAX-11 is a step up from DEC's PDP-11; its improved features incorporate many of the same design principles.

The VAX-11 has a 32-bit word size and uses a standard 8-bit ASCII character set. Each of our VAX-11's will be delivered with 2.5 million 8-bit bytes of memory. The memory is expandable to 8 million bytes. Each VAX will come with a floating point accelerator (FPA) that executes floating point arithmetic instructions more rapidly than does a standard VAX. Finally, you should note that the VAX-11 is a virtual address machine. In fact, its name comes from this design feature -- Virtual Address eXtension. Programs can use more memory than exists on the machine. Additional memory is kept on disk and paged into the real memory when needed.

The first VAX-11/780 with 768 million bytes of mass storage is scheduled for delivery on 1 May to our Image Processing Center in Shepherd Laboratory on the East Bank campus. The second VAX-11/780 with 512 million bytes of mass storage will be delivered to Lauderdale during July. We are deciding whether to run the VMS or UNIX operating system on the Lauderdale VAX. We expect to use this VAX for general computing services and for communications research, culminating in a campus-wide network. The Lauderdale VAX will have 16 dial up lines. We hope some of you will be interested in using its real 8-bit character set.

L. A. Liddiard, 373-5239  
K. C. Matthews, 376-5602

## system overview: a look into the future

The Cyber 74 is the oldest of our large CDC mainframes and, because of its older technology, the most expensive to maintain. It is not as expandable as the newer CDC machines; its 131K words of central memory are the most that can ever fit on that machine. Transferring the same amount of data from disk on the Cyber 74 takes twice as long as it does on the other Cyber systems. The Cyber 74 also has some inefficiencies of computation and storage because of its 6-bit display code character set (a characteristic of Cyber machines). Given these disadvantages, the Cyber 74 is the most likely machine to replace when we consider installing a larger system. We also recognize a need for a faster FORTRAN machine; this would especially benefit users of applications packages, such as SPSS and graphics users. We would also like to provide batch service at more competitive rates drawing number crunchers and graphics users.

## compatibility

When we consider a larger system we must find one compatible with all our investments in systems and applications software on the Cybers. Since our investment has mainly been in FORTRAN and Pascal programs and packages, these languages on the new system must be closely compatible to those residing on our Cybers. In addition, we expect the system to have floating point arithmetic and an exponent range and precision at least as good as, if not better than, our current system.

## solution

Thus we desire to add a large scale system, possibly Class VI performer, that will represent state-of-the-art in design and performance for batch processing. This system will enable us to dispose of the Cyber 74 during fiscal year 1982 and will give the University a five year plan for large scale computation. We will use the Cyber 170-730 and VAX-11/780's as front ends to this new system slated for installation at Lauderdale. We expect the vendor to recommend ways of introducing the new system with minimal disruption to normal production.

The University has gone out on a Request for Proposal to satisfy these requirements. Cray Research was the sole bidder and the University Advisory committee and central administration are now deciding whether to accept that bid.

## business plan

We expect that compared to the cost of running a FORTRAN or Pascal job on the Cyber 74, the cost on the new system should be 1/2 the cost of NOFRILLS rate or 1/3 the cost of NORMAL Cyber 74 rate for a comparable job. In addition, those jobs that can take advantage of the new system's vector processing will see costs reduced by an additional factor of 1/2.

L. A. Liddiard, 373-5239  
K. C. Matthews, 376-5602

## rate changes

We are pleased to report that except for some minor adjustments, our rates will remain in effect for the next fiscal year. Note that the installation in May of the dual CPU Cyber 170-730 with a performance factor .7 times faster than the Cyber 74 should mean a 10% reduction in CPU costs for a job compared to that job run on the Cyber 172. The Class VI machine, to be installed this summer, should provide significant savings for those of you who do large batch processing. The rate structure for the new VAX-11/780's is under evaluation by the University Computer Advisory Committee, and should be similar to Cyber rates for CPU performance and mass storage. Our rates are based on our expenses for storage and for the central system. As it turns out, the VAX

costs about the same as the Cybers for the same relative performance, therefore we expect to have similar rates.

Significant rate increases for printer pages, punched cards, plotter output, and tape mounting service were instituted last July and since that time we have observed a corresponding decline in the use of these resources. It seems economic laws of supply and demand still apply to computer usage and to rate structures for associated resource usage.

L. A. Liddiard, 373-5239

## software pricing

We are still developing a policy for unbundled software pricing, as there is some demand, from both vendors and users for a finer breakdown in rates. A number of other Universities, notably Washington and Wisconsin, have successfully established rate systems that separate CPU charges into individual hardware and software usage costs.

L. A. Liddiard, 373-5239

## VAX facts

As reported earlier, we will install one of the VAX's at our Image Processing Center (IPC) located in Shepherd Laboratory. IPC develops and supports image processing software, including digital imaging, color graphics, and CAD/CAM, (computer-aided design and computer-aided manufacture) software, as well as text processing software. The initial equipment configuration for IPC's VAX will be:

Quantity	Description
1	VAX-11/780 2.5 megabytes with Floating Point Adapter
1	Nine-track Kennedy tape drive
3	300 Megabyte Removable Disk
8	300/1200 Baud Dial up Phones
1	Versatec (or equivalent) 11" 200 dot-per-inch electrostatic plotter
1	ZETA (or equivalent) 4-color pen plotter
1	Printronic Graphical printer
1	Dicomed 047 High Resolution Film Recorder (Polaroid, 70mm, 35mm)
1	Dicomed Digitizer
1	36"x44" Flatbed X/Y Digitizer

The VAX System will run UNIX, either by itself or under VMS. We are planning major enhancements to our graphics software and will offer DISSPLA and TELL-A-GRAF sometime later this year.

Dial-up public access should be available on IPC's VAX before July 1, 1981. Read next month's Newsletter for details.

S. P. Nachtsheim, 373-7878

## text processing

Many University departments have acquired free-standing microprocessor controlled word processors capable of producing reasonable quality technical text, i.e., text which includes mathematical symbols and Greek letters. Some of these processors can act as terminals, communicating with the Cybers. We are still working toward providing technical text processing through some in-house facilities for those of you who do not plan to acquire your own processors.

The Bell Labs word processing software, which includes EQN, NROFF, and TROFF has been successfully implemented under the UNIX system on a PDP-11 minicomputer in our Image Processing Center. Several pages of mixed text and equations were input, and the result printed on the Varian Electrostatic Dot Plotter. This process is still unrefined and not ready for production use.

As was mentioned in an earlier report, an experimental software-hardware interface was developed to drive the Printing and Graphic Arts typesetter to produce mixed text and equations from a file output by the Bell Labs software. This process, too, must be refined before it can be considered ready for general use. When the Bell Labs software is implemented on the VAX, the Technical Text Processing Project should move forward rapidly. There will be a further and fuller report on both parts of the project in the near future.

Work continues on TEX, the Knuth typesetting program, and on development of a program to drive the Varian dot-plotter. Other drivers for other devices will also be developed.

We are considering the purchase of a receive-only serial printer for experimental purposes. Our goal is to develop or acquire the driver programs needed to interface a slow speed interactive letter-quality printer to the Bell software residing on a minicomputer, and to TEX on the Cybers.

We are interested in locating those of you who are successfully communicating with the Cybers using a word processor that can produce technical text. Please call us if you think your processor is in this category, even if you are not using it for technical text.

T. D. Hodge, 373-4599  
M. J. Frisch, 376-1636

## new terminal type

Do you suffer from a lack of stress? Do your punch lines somehow lose their punch? Do you find it hard to emphasize what's really important? Do you have a need to use special symbols like ≠ or ≠ or ⊕ or even ⊕ ? Then take heart folks, help is now available.

A new terminal type is now available on the Cyber systems called UNDERLN. It allows both the underline character and the backspace character to be typed in from your terminal and placed onto a file usually through TEXT mode. When you list the file, the underline will actually appear under the word that you want to stress. This has been unavailable up until this time unless you used a text formatter. Also, since the backspace character is placed on the file, you have the ability to overprint to get new symbols like ⊕ or even ⊕. You decide how you might want to use those. How, you may ask, can I make use of these long awaited features?

After logging into the system simply use the command:

```
TERM,UNDERLN
```

and from that point on the underline and backspace keys simply are passed directly into the system (onto your file in most cases). The only things to be aware of while in underline mode are:

1. Files created in this manner should not be printed on the high speed printers. They will not print correctly.
2. In order to delete a line you are typing (you presently use the escape key for this) simply type control-X.
3. In order to erase a single character (you presently use backspace or underline for this) use the RUBOUT or DELETE key, whichever your keyboard has.
4. If you want to permanently change your terminal type, use the SETVAL(TT=UNDERLN) command, if you are validated, to change your password.
5. To turn off this terminal type, use TERM,TTY.

With these things in mind (it's easy to forget), try it and see how it works. We hope you find many ways to use this new terminal type.

R. Franta, 376-3963

## bulletins

A consultant with expertise on graphics will be on duty at the general consulting service in 140 Experimental Engineering from 10-11 AM, Monday-Friday again spring quarter.

S.K. Graffunder, 376-1637

## on-line survey

We will conduct an on-line survey of MERITSS users in the middle of spring quarter. The results will tell us how well we are meeting your needs and help us improve our service.

Some of you will be selected at random when you log in to the system to answer three to five short questions. The survey will take about a minute to complete.

We will also provide a facility for you to give us your opinions in essay form.

S. E. Collins, 376-5608

## new ACCSTAT parameter

We have added an LM parameter to the ACCSTAT control statement. When selected, this parameter forces ACCSTAT to use the last data file from the previous month as input. You therefore can obtain an end-of-month ACCSTAT for the previous calendar month by using the control statement

```
ACCSTAT(LM,...)
```

at any time during the present month.

G. Jensen, 376-1762

## library changes and additions

The following changes were made on March 22 to our libraries:

IMSL Edition 8 was installed. See the March Newsletter for details.

AXISP was changed to properly allow the centered location of axis titles.

CMXMPly had an error message corrected.

Q92X8J (an internal routine used by PLOT PAC) was changed to make it easier to compile with FTN5.

M. J. Frisch, 376-1632

## TIDY

A new version of TIDY was recently placed on the system. It corrects a bug involving nested DO loops which terminate on the same statement. Previously only the first DO statement would be indented. An assortment of other minor bugs was corrected as well.

J. Woolsey, 376-5262

## writeupdate

As we move from the cold winter months into the glowing warmth of the impending spring, take a look at the following recently-modified WRITEUPs. They will make your spirits soar, and your resources dwindle.

ACCSTAT (74+172) - Describes the new LM option for listing last month's accounting statistics.

STORE (all machines) - Describes the function and policies of our Computer Store. (See related article in last month's Newsletter.)

SWPRICE (74+172) - Describes our updated software pricing policy.

Don't forget that you can get a short listing of WRITEUP titles exclusively by using the LO=S option on the WRITEUP(INDEX) control statement.

J. T. Jaynes, 376-9490

## secure bins

We have just installed a number of secure bins at the Lauderdale site. There are also secure bins available at the I/O site in Experimental Engineering. Call Sue Winholz, 376-3068 for information on the Experimental bins. For information about the Lauderdale bins, call Carol Winther at 373-4995.

## EBR to retire

The Electron Beam Recorder which we have used for over a decade to produce 16mm microfilm will soon be retired. We have been notified by 3M, EBR's manufacturer, that they will not be supporting the EBR beyond March of 1982. It is probable that, due to other needs for computer room space, we may suspend or terminate EBR operation within the next couple of months. We now have a contract to produce microfiche through a service bureau. A description of this service is available through WRITEUP(SERVICE=FICHE). We have previously sent a letter to everyone who used the EBR from July 1, 1980 through February 28, 1981, notifying them of this change. We trust that no one will be seriously inconvenienced. Questions? Call Carol Winther at 373-4995 or

J. Larson, 373-7538

## xerox 9700 service

We can print your output on a Xerox 9700 page printer since we now have a contract with a service bureau. The Xerox 9700 has a wide variety of fonts, a duplex printing option, capabilities to create forms, which along with its print quality make it a very useful output device. We are developing a general purpose utility package to allow you to route output files to make use of these options. Since it will take some time to develop the utility, an interim method for sending print files that use few or none of the Xerox 9700's special options has been developed. This procedure is documented in WRITEUP(SERVICE=X9700). Questions about this service may be directed to

J. Larson, 373-7538

## UCS news notes

### *coordinator's note:*

Our first UCS News Notes introduced you to University Computer Services (UCS), directed by Dr. Frank Verbrugge, and to the eight regional University computer centers. This month, Dr. John E. Skelton, Director of the University computer center at Duluth and Chair of the UCS Advisory Council on Network Planning, describes the background, function, and direction of the Advisory Council.

M. C. Boyd, 373-2522

### *advisory council on network planning*

The Advisory Council on Network Planning was established by Dr. Frank Verbrugge in July of 1980, subsuming the existing University Computer Services Network Task Force. The council members are directors of the eight computer centers within the University-- Crookston, Duluth, Health Sciences, Morris, St. Paul, University (Minneapolis), Waseca, and West Bank--and Dr. Verbrugge, the Director of University Computer Services, as an ex officio member. The primary roles of the Advisory Council are planning, coordinating, and advising--not decision-making. Each computer center is autonomous and responsible for meeting the computing needs of its own users.

Over the past several years, working relationships between individual computer centers developed as the need arose. These relationships involved access to computing services in the form of hardware, software, and personnel. Gradually an informal University of Minnesota network was evolving based upon these individual arrangements. Over the same period of time, individual centers were acquiring equipment and developing expertise to meet the local computing needs. As the individual arrangements and the number of computing systems increased, it became clear that a structure to coordinate and guide this development was needed and thus the Advisory Council on Network Planning was established.

In the fall of 1980, a day long networking conference with personnel from all eight centers was held. After a technical presentation on networking, two working groups were formed to develop a broad plan for the University of Minnesota Computer Services Network. One of these working groups addressed user needs and concerns, and the other addressed itself to the hardware, communications, and systems required for a smoothly integrated network.

The network will slowly evolve over the next several years as individual centers acquire equipment and services to meet the computing needs of their users. The overall network plan will be a guide in these acquisitions and expansions. The Advisory Council will act as a coordinating mechanism and, of course, modify the plan as new technologies become available.

The Advisory Council also considers issues that are not, strictly speaking, hardware oriented. The Council has adopted the principle of equality of access and charging for users across the network. For example, a faculty member making an SPSS run will be charged the same regardless of the campus or the system on which the run originates. Personnel service rates (such as keypunching and programming) are reviewed periodically by the Council in order to maintain overall consistency and equality.

Through the mechanism of the Advisory Council on Network Planning, it is felt that access to quality computing can be provided in a cost-effective manner through the University to meet the diverse computing needs of the University community.

*john e. skelton, chair*

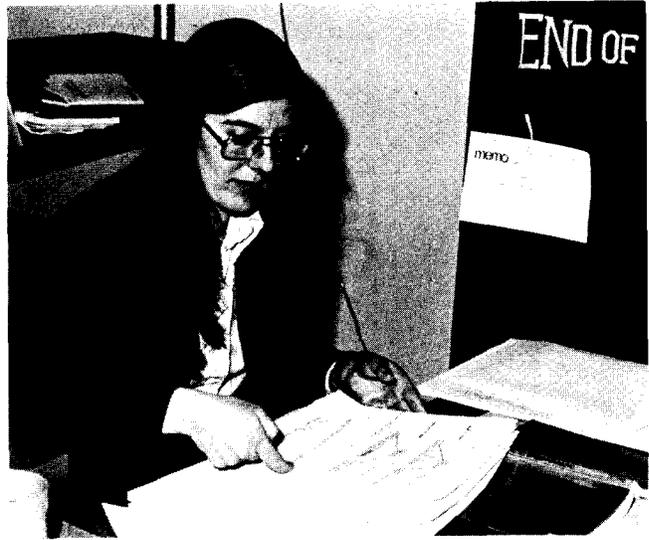
## the documentation and publications group

Our more than 170 computer publications are the responsibility of a small group of technical writers and editors known as the Documentation and Publications Group. We have three full-time technical writers, three full-time editors, and three part-time writers, and over 20 full-time UCC staff who write in addition to their regular programming activities.



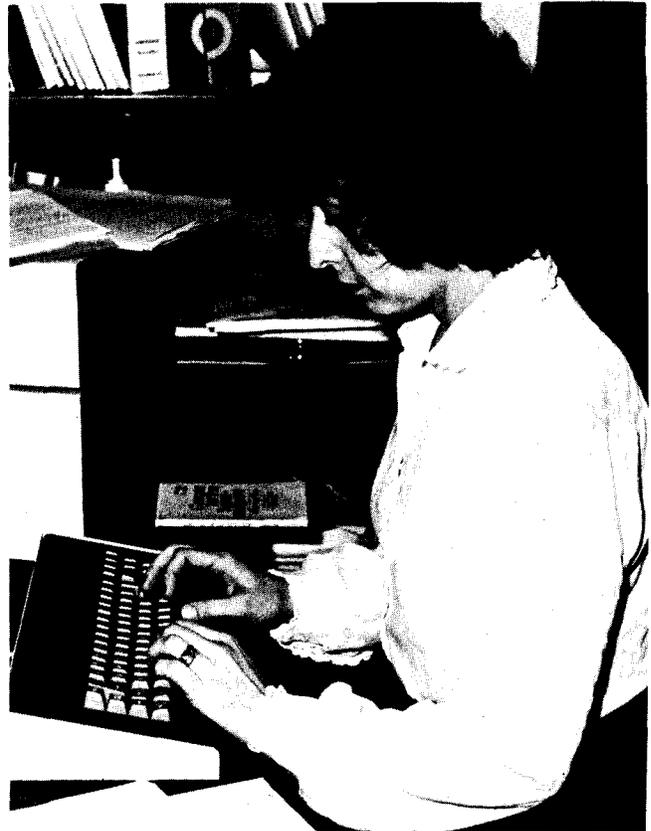
Amy Koepke blue penciling some copy.

Our full-time writers are Joe Jaynes, Linda Merims, and I. Joe whose background is in English, discovered computers in one of our short courses. He was instantly addicted, and, after working for us for a year part-time, was hired as a full-time, very knowledgeable technical writer. Linda, whose background is in history, is new to our staff, but was the assistant editor of the UCLA computer center newsletter, Perspective. She has four years experience in programming, computing, and technical writing. My name is Mary Boyd and I am the manager of the Documentation half of the group. I write documentation, supervise and organize our documentation projects, teach short courses, and program. My background is in computer science and I started in documentation over six years ago while working for the University's Health Sciences Computer Center. Our editors are Amy Koepke, Naomi Miner, and Karen Johnson. Amy, a wordsmith, is our publications manager and supervises our in-house publishing group. Naomi, a disciple of Edwin Newman, specializes in computerized typesetting, printing and production. Her background is in English. Karen's background is anthropology and library science. She manages the ordering and distribution of our documentation. Our three other technical writers are: Sara Graffunder, Consulting Supervisor; Vicky Walsh, Humanities Consulting Supervisor; and Tom Rindflesch, Graduate Project Assistant. Michael Dunham is our Librarian. He has written a separate article in this Newsletter to describe our Reference Room. We are all located in Experimental Engineering.



Linda Merims. End of information.

The Documentation and Publication Group's task is to write and edit or coordinate the writing of all our documentation--this includes printed and machine-retrievable documents. We may start a new document or we may help any of our staff writers plan and execute a document.



Mary Boyd composing at the Terak.



Naomi Miner -- after the Newsletter has gone to press.

Each new document goes through an extensive production process before it is ever made available. We first examine the document to determine if it is really needed--does it have an audience? --will its contents duplicate that of another document? --is there a better way to present the information?

Assuming that there is a need for the document, we confer with the author to plan and organize the contents. This is the most important step, ensuring that we have covered the necessary material, in a manner that will be useful and meaningful to the intended reader. We determine who our intended reader is--a new or experienced computer user; what physical format will be suitable--a one-page brief, a fold-out card, a booklet, or a complete manual; and what level of complexity the topic deals with--general or specialized information. At this point, we also decide whether to include such items as a glossary, an index, diagrams, or photographs. The entire document is planned and outlined before we ever start to write.



Joe Jaynes and Naomi Miner discuss a section of a new guide.

Once the document is written, it goes through a review process. Members of the Documentation and Publication Group review it for organization, clarity, conciseness, completeness, grammar, spelling and style. Members of our programming staff always help review a document for accuracy of technical content. After all changes and suggestions have been incorporated, we produce camera-ready copy or a compuscript for the printer.

As part of our responsibilities, we also routinely review our established documents. We examine, at least once annually, each printed and machine-retrievable document. We check to see if the contents are still accurate, if the listed author is still assigned to that document, if the document is still relevant, and if the contents need to be expanded and brought up to date.

We are most interested in your satisfaction in and acceptance of our documentation. If this discussion of our documentation process has produced comments, suggestions, criticisms, or even kudos, call

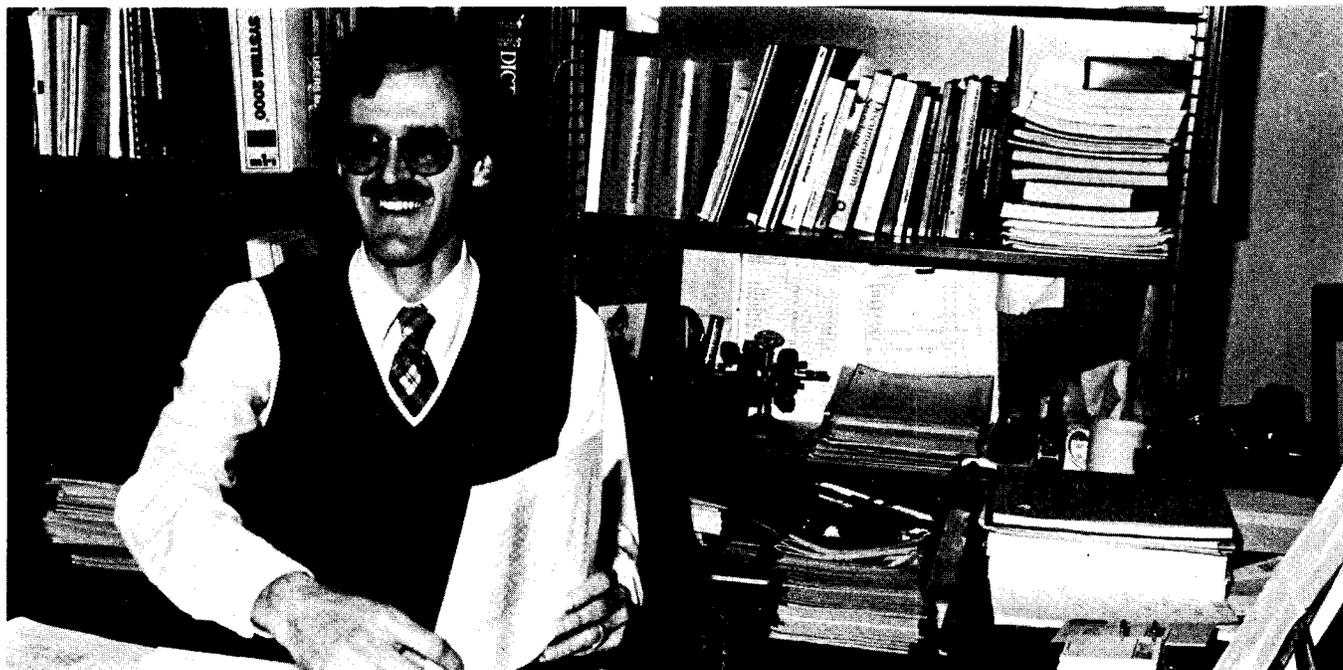
M. C. Boyd, 373-2522

Karen Johnson wielding the T-square at the light table.



photos by R. Hotchkiss.

## reference room



Michael Dunham updating the IMSL documentation.

Our Reference Room, located in 235a Experimental Engineering, is a small resource library maintained for our staff and clients. Even though the Reference Room houses a non-circulating staff collection, resources are available to students and other members of the University community. Multiple copies of our most frequently-used manuals are available for short-term loan to students. Our hours are from 8:00 AM to 4:30 PM, Monday through Friday.

Once described as "eclectic," the collection contains an assortment of computer-related materials. Here one will find manuals, books, journals, newsletters, technical reports, conference proceedings, bibliographies, indices, and catalogs. We use the System 2000 Data Base Management System for our data base; it contains complete bibliographic data for each document. You will find in the case of journals and proceedings, bibliographic information for each of the articles or papers as well. If you have a valid UCC account, you can access the data base interactively. Periodically we use the data base to generate catalogs and indices of the Reference Room collection.

Our most important holdings are the current manuals. The manuals document the University's computer hardware and software. We update our collection to be concurrent with upgrades in hardware and software. Our collection may be described as "distributed" because books are distributed among staff members. Our catalog and the data base indicate shelf or office location.

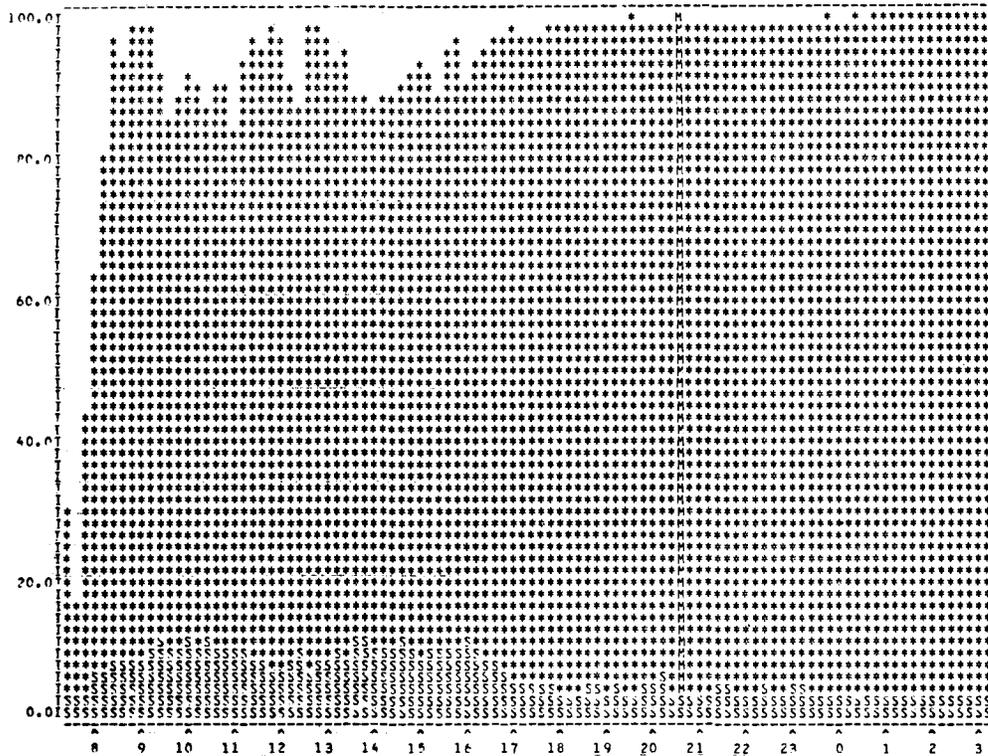
Our journal collection is made up mostly of publications from the Association of Computing Machinery (e.g., Journal of the ACM, Communications of the ACM, Computing Reviews, Computing Surveys, and so on). However, there are a number of other journals. We recently expanded the journal collection to include publications on microcomputers and home computing. You will find titles like Byte, Creative Computing, Interface Age, and Kilobaud Microcomputing. We receive approximately 100 newsletters from other computer centers and installations and many are circulated to our staff members. The technical reports come from a variety of sources, including those we sponsor and those sponsored by the Computer Science Department.

Space is a constant problem for libraries, and for our collection, particularly. Unfortunately, we have had to store older, infrequently used materials in the basement of Lind Hall. If requested, these items will be made available with a few days' notice. My name is Michael Dunham and I am the librarian. My assistant is Betty Miller who ably helps with data entry, data base updating, and document circulation.

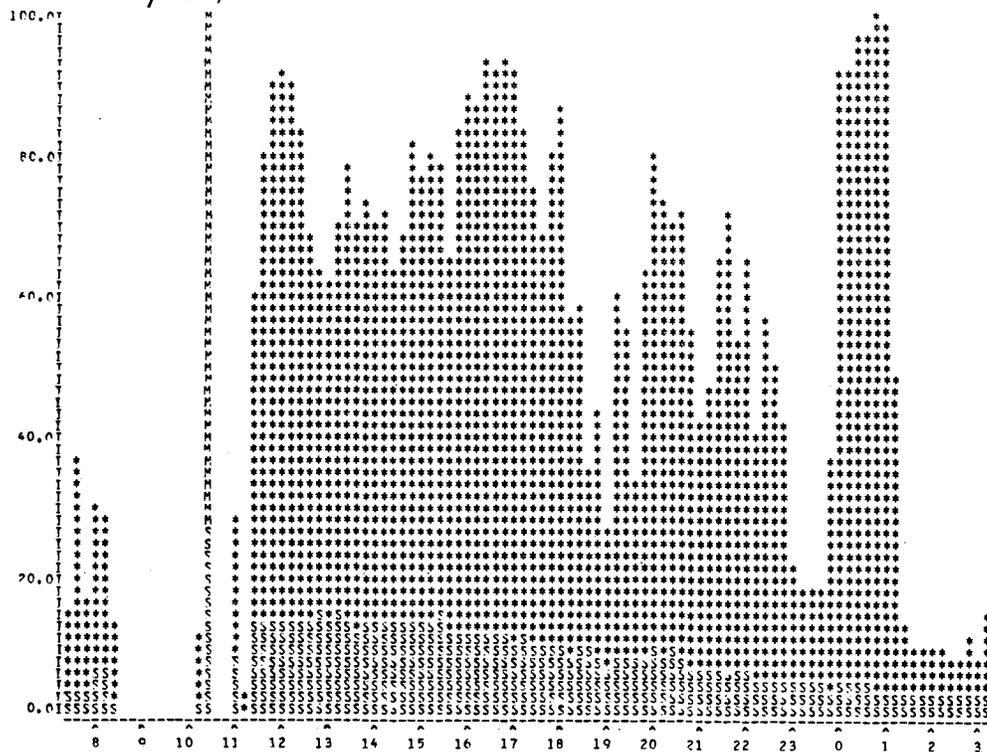
M. A. Dunham, 373-7744

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[CStore ]	FTN VERSION 4 REFERENCE MANUAL		-- Graphics Programs --
[CStore ]	FTN VERSION 5 REFERENCE MANUAL	[CStore ]	ARTPLOT
[RefRm ]	MIX AT THE U OF MINN	[140Ex ]	CALCOMP FORTRAN GRAPHICS: BUSINESS
[140Ex ]	MNF - A GUIDE	[140Ex ]	CALCOMP FORTRAN GRAPHICS: DRAFTING
[140Ex ]	MNF - MANTRAP	[140Ex ]	CALCOMP FORTRAN GRAPHICS: GENERAL
[CStore ]	M77 REFERENCE MANUAL	[140Ex ]	CALCOMP FORTRAN GRAPHICS: SCIENTIFIC
[140Ex ]	PASCAL AT U OF MINN	[140Ex ]	CNTOUR
[WRITEUP]	PASCLIB	[140Ex ]	GRIDIT
[WRITEUP]	PTOOLS	[CStore ]	GUIDE TO GRAPHICS FACILITIES
[140Ex ]	SNOBOL4 AT THE U OF MINN	[140Ex ]	IMAGPLT
[WRITEUP]	SNOINFO	[RefRm ]	MEXPLOR
	-- Statistical Packages --	[140Ex ]	PLOT3D,PLOT3S
[RefRm ]	BMDP UPDATE	[RefRm ]	PLOTTEXT
[140Ex ]	CLUSTER	[CStore ]	PLOTPAC
[140Ex ]	IMP USERS GUIDE	[140Ex ]	PLTSCL
[CStore ]	MINITAB REFERENCE MANUAL	[140Ex ]	POLYGN
[CStore ]	OMNITAB II, AN INTRODUCTION	[140Ex ]	PRNPLOT
[CStore ]	SPSS 6000 VERSION 8.0 UPDATE	[140Ex ]	SCLPLT
[CStore ]	SPSS ANOVA	[RefRm ]	SIGN
[CStore ]	SPSS CTAB	[140Ex ]	VIEW, SKIPPLT
[CStore ]	SPSS G3SLS	[RefRm ]	WEAVE
[CStore ]	SPSS JFACTOR		-- Math/Stat Routines --
[CStore ]	SPSS MANOVA	[140Ex ]	MINNLIB subroutine library writeups
[CStore ]	SPSS MULT RESPONSE	[CStore ]	GUIDE TO USER LIBRARIES
[CStore ]	SPSS NONLINEAR		-- Vendor Manuals --
[CStore ]	SPSS NPAR	[RefRm ]	Vendor manuals available for reference use
[CStore ]	SPSS ONLINE GUIDE		
[CStore ]	SPSS PLOT		
[CStore ]	SPSS REGRESSION		
[CStore ]	SPSS RELIABILITY		
[CStore ]	SPSS REPORT		



Cyber 172 February 25, 1981



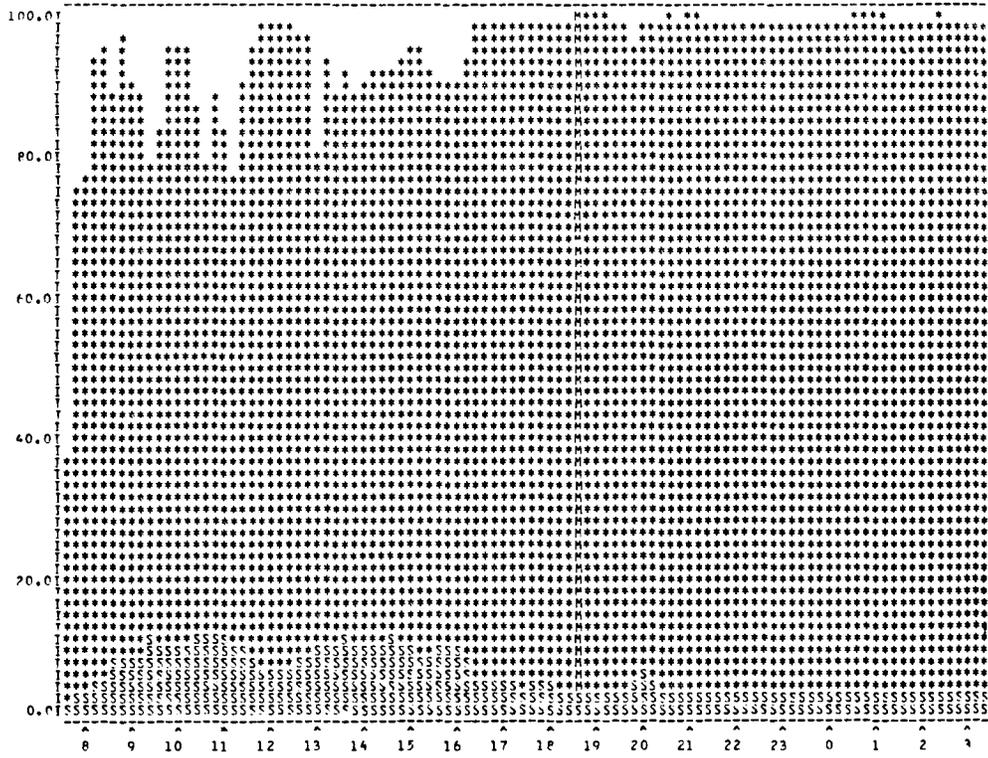
Cyber 74 February 25, 1981

### CPU utilization

Once a year we usually present some performance statistics for Cyber usage in the month of May. This year, our usage has peaked even earlier, which you will see from the graphs above. The 24th and 25th of February seem ideal dates for demonstrating CPU usage. In addition to the highest percentage of CPU utilization, 94.5, for an entire 20-hour day, the Cyber 172 graph for the 24th neatly capsulizes why we will upgrade to a Cyber 170-730 in May. On the graphs, the S's represent CPU utilization for system overhead; the \*'s represent the CP cycles delivered.

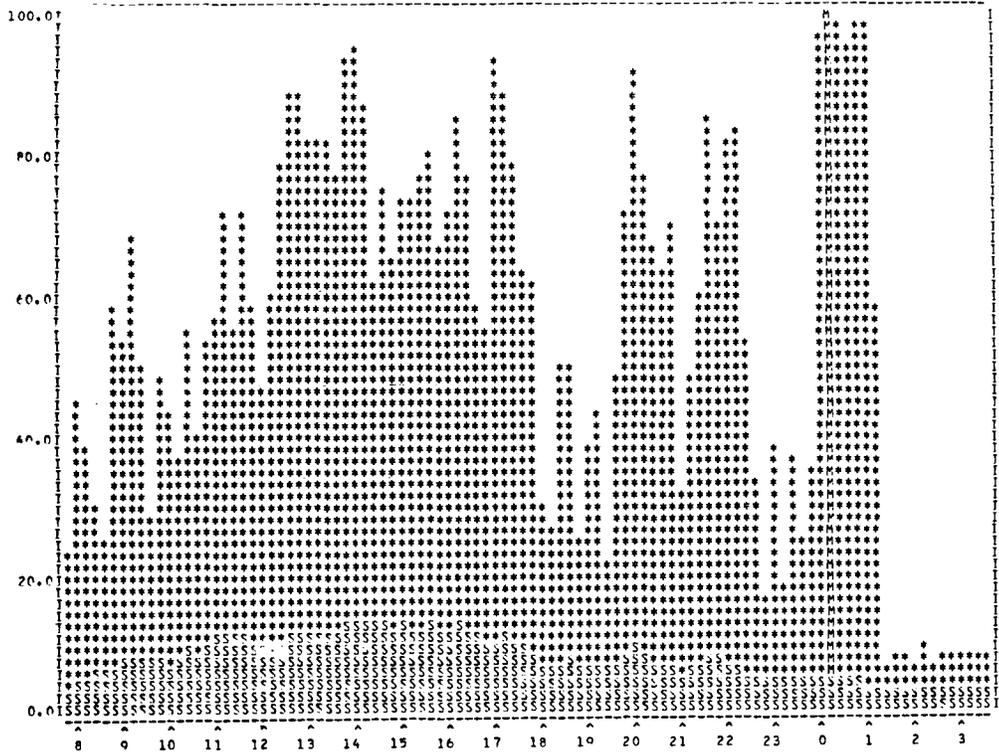
L. A. Liddiard, 373-5239

# CPU utilization



Cyber 172 February 24, 1981

# performance monitoring



Cyber 74 February 24, 1981

# Short Courses

UCC Short Course Schedule for Spring 1981

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^Computing: What is it?.....; 3:15-5pm, 3-9 Apr (fmtwth), Arch 30  
 ^Introduction to UCC.....; 3:15-5pm, 10 Apr (f), Arch 40  
 ^NOS (system configuration)....; 3:15-5pm, 13 Apr (m), Arch 40  
 ^NOS (files/jobs).....; 3:15-5pm, 14-15 Apr (tw), Arch 40  
 ^NOS (permanent files).....; 3:15-5pm, 16 Apr (th), Arch 40  
 ^NOS (program execution).....; 3:15-5pm, 17 Apr (f), Arch 40  
 NOS (intro to tapes).....; 3:15-5pm, 20 Apr (m), Arch 40  
 NOS (misc. statements).....; 3:15-5pm, 22 Apr (w), Arch 40  
 NOS (control language).....; 3:15-5pm, 24 Apr (f), Arch 40  
 Apple-Pascal(intro).....; 2:15-4pm, 13-15 Apr (mw), AgEng 108  
 Apple-Pascal(language).....; 2:15-4pm, 14 Apr-7 May (tth), AgEng 108  
 Apple-Pascal(lab).....; 2:15-4pm, 22 Apr-13 May (w), AgEng 105  
 Call 376-4276 to register for the lab portion of Apple-Pascal  
 Graphics.....; 3:15-5pm, 20-24 Apr (mtwf), Arch 45  
 Graphics Workshop.....; 7:30-9:30pm, 23 Apr (th), Laud\* (see note)  
 ^Interactive System Commands...; 3:15-5pm, 21-23 Apr (tth), Arch 30  
 ^Interactive Systems Lab.....; 3:15-5pm, 28 or 30 Apr (tth), Arch 30  
 ^Batch Introduction.....; 2:15-4pm, 23 Apr (th), AkerH 309  
 ^XEDIT.....; 2:15-4pm, 27 Apr-1 May (mwf), ExpE 193  
 Introduction to DBMS's.....; 3:15-5pm, 27 Apr (m), Arch 45  
 LISP.....; 3:15-5pm, 27 Apr-8 May (mwf), Arch 20  
 Advanced COBOL.....; 3:15-5pm, 28 Apr-14 May (tth), MechE 302  
 SIR.....; 3:15-5pm, 28 Apr-14 May (tth), ForH 40  
 Introduction to System 2000...; 3:15-5pm, 29 Apr-15 May (mwf), Arch 45  
 SPSS (SPSS basics).....; 3:15-5pm, 4 May (m), Arch 40  
 SPSS (data manipulation).....; 3:15-5pm, 5 May (t), Arch 40  
 SPSS (SPSS files).....; 3:15-5pm, 6 May (w), Arch 40  
 SPSS (On-Line).....; 3:15-5pm, 8 May (f), Arch 40  
 Advanced FORTRAN.....; 3:15-5pm, 5 - 14 May (tth), AkerH 319  
 \$ System 2000/RW.....; 3:15-5pm, 19 - 21 May (twth), Arch 30  
 Query/Update.....; 3:15-5pm, 19 - 21 May (tth), AkerH 319  
 System 2000/PLEX (PLI).....; 3:15-5pm, 26-28 May (twth), Arch 30

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**NOTE:**

^: up-arrow (^) indicates this course is a prerequisite for other, unmarked courses.

\$: indicates a change in the schedule since first publication.

HOLIDAY: 25 May (m) is a University holiday. No classes will be held.

\*: Class held at Lauderdale conference room, Lauderdale computer site, 2520 Broadway Drive, Lauderdale, MN.

For more information concerning these short courses, see WRITEUP(CLASSES) or call Lincoln Fetcher at 376-1637.

# statistics

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

	February, 1981	February, 1980	% Change
System resource units (SRU)	1,460,415 (1,872,160)	1,285,606 (1,597,761)	13.6 ( 17.2)
Batch jobs and MIRJE sessions	116,555 ( 128,009)	134,604 ( 144,282)	-13.4 (-11.3)
Total central processor (CP hours)	165/252 ( 178/399)	180/197 ( 190/312)	(- 6.3 / 27.9)
DELAY queue CP hours	43/ 67 ( 45/ 86)	50/ 42 ( 50/ 54)	(-10.0 / 59.3)
NO FRILLS queue CP hours	15/ 11 ( 16/ 11)	14/ 13 ( 14/ 13)	( 14.3 /-15.4)
Mass storage transfers (KPR)	479,672 ( 599,376)	432,230 ( 547,487)	11.0 ( 9.5)
Magnetic tape transfers (KPR)	9,164 ( 13,291)	12,590 ( 16,900)	-27.2 (-21.4)
Pages printed, charged from UCC	922,830 (1,037,406)	1,109,560 (1,221,341)	-16.8 (-15.1)
Cards punched	214,128 ( 335,106)	284,477 ( 355,568)	-24.7 (- 5.8)
Microfilm frames produced	10,988 ( 524,988)	37,259 ( 490,470)	-70.5 ( 7.0)
MIRJE terminal hours	16,998 ( 19,810)	14,573 ( 16,768)	16.6 ( 18.1)
Number of terminal sessions	41,279	33,906	21.7
Status plotting production (feet)	7,312	10,194	-28.3
Tapes mounted	10,999	12,767	-13.8
Average file storage (char)	3,646.8 million	2,997.0 million	21.7
Mean time between failures	61.1/81.5 hours	252.5/126.3	-75.8 /- 35.5
Available during scheduled hours	98.7/99.0 percent	99.6/ 99.3 percent	- .9 /- .3

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

## \*\*\*DOWNTIME SUMMARY: March, 1981 (Column 1, Cyber 74 : Column 2, Cyber 172)

	0800-1800 M-F		other		total	
Total possible scheduled uptime hours	220.0	220.0	318.0	318.0	538.0	538.0
Total downtime hours (see Schedule A)	2.4	4.8	2.4	4.8	4.8	7.9
Total uptime hours	217.6	215.2	315.6	314.9	533.2	530.1
Uptime (percent)	98.9	97.8	99.2	99.0	99.1	98.5
Average downtime per occurrence (min)	28.8	57.0	143.0	92.5	47.8	67.1
Mean time between failures (hours)	36.7	36.7	159.0	159.0	76.9	76.9
Subsystem failures						
SUPIO	2	-	1	-	3	-
TELEX	0	0	0	0	0	0
EXPORT	3	-	4	-	7	-

## Schedule A: downtime hours

	Number		Total hours		Average minutes	
(1) Preventive maintenance over-runs	1	2	0.1	0.4	1.0	10.5
(2) Software related problems	0	0	0.0	0.0	0.0	0.0
(3) Hardware related problems	2	2	1.7	5.5	52.0	164.5
(4) Indeterminate problems	2	1	2.4	1.4	73.0	83.0
(5) External Problems	1	1	0.6	0.6	36.0	37.0

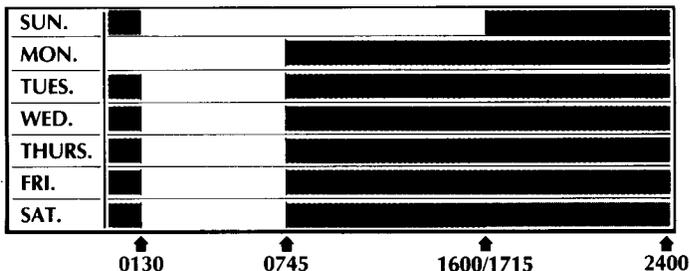
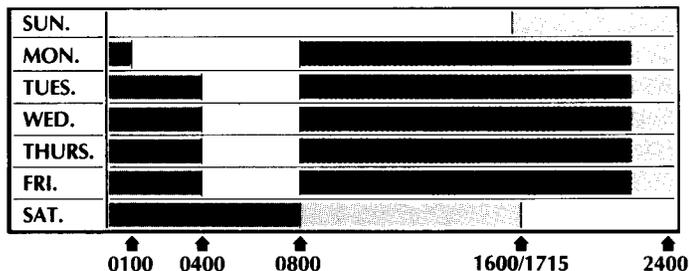
## \*\*\*PRODUCTION USAGE SUMMARIES: Cyber 170-720 (MERITSS)

	February, 1981	February, 1980	% Change
Number of jobs run	334,624	271,023	23.5
Central processor hours	216	201	7.5
MERITSS terminal hours	39,923	32,787	21.8
Number of terminal sessions	86,757	62,362	39.1
Maximum number of simultaneous users	169	146	15.8
Average file storage (char)	547.9 million	490.6 million	11.7
Mean time between failures	226.7 hours	201.1 hours	12.7
Available during scheduled hours	99.0 percent	99.1 percent	-.1

# operations

### CYBER 74+172 OPERATING HOURS

### CYBER 720 OPERATING HOURS



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

Up, not attended  
 Up, attended

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

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

#### TWIN CITIES CAMPUS PUBLIC REMOTE JOB ENTRY SITES

#### TWIN CITIES INSTRUCTIONAL COMPUTER LABORATORIES

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

SITE	SUPERVISOR	PHONE	EQUIPMENT
<b>East Bank</b>			
CentH	R. Rickgarn	3-2289	TTY33(2)
ComH	C. Youngdale	3-2453	TTY43(1)
DiehH 535	N. Sauro	6-7005	CRT(2)
EltH 121, 125	D. Anderson	3-5827	TTY33(6) CDC713(1) Hazeltime(3) Telera(1)
FrontH	D. Schumacher	3-2740	TTY33(1)
HS-A 1-752	L. Ellis	3-0331	TTY33(3) TTY43(2) Telera(1) Decwriter(1) CDC713(6) Decwriter(5) Tektronix4013(1)
LindH 25	T. Chan	3-7580	Telera(1) TTY43(11) TTY33(4) Telera(3) Decwriter(5)
MechE 308	D. Riley	3-0340	TTY33(4) Telera(3) Decwriter(7) Telera(2) TTY43(10) CRT(2)
<b>West Bank</b>			
SanfH	M. Kilbury	3-3434	TTY33(1)
TerrH	B. Hackett	3-3567	TTY33(1)
VincentH 4	W. Stenberg	3-2586	TTY33(2) CDC713(2) Decwriter(7) Telera(2)
WaLib 204	R. Estelle	3-2538	TTY43(10) CRT(2)
<b>West Bank</b>			
BlegH 140	D. Lund	3-3608	TTY43(13) Telera(1)
MdbH	R. Baker	3-9818	TTY33(1)
SocSci 167	D. Lund	3-3608	TTY33(5) Telera(3) Decwriter(2)
<b>St. Paul</b>			
ClaOff 125	C. Bingham	3-0988	TTY33(6) Hazeltime(2) Decwriter(4)

Keypunches provided at each site.

## phone numbers

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

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