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## CRAY 1B ON THE JOB!

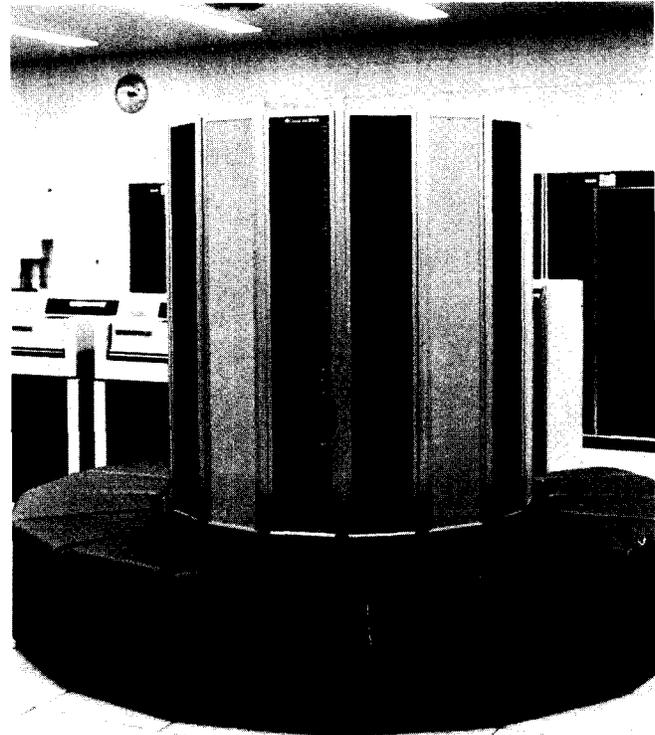
It's here! The Cray-1B was installed at the University Computer Center's Lauderdale facility in October and is now up and running. Cray-1, the world's most powerful computer, can perform up to 140 million calculations per second in short bursts—overall, it works about 20 to 40 times faster than any of UCC's Cybers.

To those of us reared on science fiction in which computers filled walls, if not rooms, the Cray's comparative smallness is astonishing: its base measures approximately eight and one-half feet, while it reaches a mere six and one-half feet in height. Wilt Chamberlain would tower over the "minuscule" Cray.

And then, of course, there are its looks. You may never have associated the words computer and glamour before, but the Cray-1 might change your mind: with its charming "love seat" construction and striking maroon and gold panels, it would probably feel right at home in the lobby of a four-star hotel.

But the Cray's appearance is deceptive. Hidden behind its flashy exterior is a serious machine indeed. The semiconductor mainframe houses more than 200,000 integrated circuits, 3,400 printed circuit boards, and 60 miles of wire in less than 70 square feet of floor space. Its memory holds four million bytes of information, and its capacity can be expanded to hold eight million bytes. The speed and storage capacity of the Cray make it the state-of-the-art super computer. Its only drawback (if you choose to so define it) is that it can process data more quickly than data can be fed into it. Thus the Cray itself operates as a back end processing unit connected, at UCC, to the Cyber 730, which acts as a front end processing unit. The front end system, linked to the Cray's input and output channels, provides the data to satisfy the Cray's cravings.

The Cray is the ideal computer for large scale computation, especially in the areas of "number crunching" or statistical manipulation. It accepts jobs written in Cray FORTRAN (CFT). Standard FORTRAN programs will compile and execute correctly and rapidly with little or no conversion effort; moderate effort can lead to greater performance improvement; additional effort can lead to the capability of solving problems previously considered intractable. WRITEUP(SERVICE/CRAY) explains how to



The Cray

use UCC's Cray; WRITEUP(CRAY) provides control statement information.

The Cray is accessed through the Cyber 730; a job can be entered into the input queue on the Cray using the EXPORT or SUBMIT commands on the Cyber. The output of a Cray job entered via these commands will be retained as a permanent file under the family of job origin (C74 or C172). The name of the file will be the same as the job name; the file will contain no banner page or trailer page, only the Cray output.

Cray internal charges are fifty-five cents/System Billing Unit (SBU). For additional information about the Cray, contact Tom Lanzatella, 376-5606.

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### —CORRECTION—

In the October Newsletter article "Announcements—New and Nifty," the phone number for ordering large numbers of UCC documents was incorrect. Those who wish to contact our Publications Group for such documents should contact Karen Johnson at 376-4668. We apologize for any inconvenience this error may have caused.

Director: Peter C. Patton  
Editor: Christine Mack Gordon

Comments about the content of this newsletter, or suggestions for changes may be directed to the editor, 235a Experimental Engineering, or call 612/376-9832.

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

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## EDITORIAL

The Council on Computing at Dartmouth College recently developed a computing code of ethics for users of their systems. We believe this code is a valid one for all computer users and would like to share it with you at this time.

Every user of the University Computer Center has two fundamental rights: privacy and a fair share of resources. It is unethical for any other user to violate these rights.

### Privacy

Each user number belongs to an individual or to a department. Nobody else should use a user number without explicit permission from the owner.

Programs and files belong to the owner of the user number or catalog containing the programs and files. They are presumed to be private and confidential unless the owner has explicitly made them available to the public.

Some programs gather information about the users who run them. If such information could be used to

identify the user, the user should be warned and given a chance to leave the program before data collection begins.

Obscenities should not be sent by computer, nor stored where they could offend other users.

### Resources

Nobody should deliberately attempt to degrade system performance or to deprive other users of resources or access to any system.

Loopholes in computer systems or knowledge of a special password should not be used to damage computer systems, obtain extra resources, or take resources from another user.

User numbers should be used only for the purpose for which they are intended. Computer time should not be shared with other users, except on a very limited basis.

No user number should be used for unauthorized commercial purposes.

UCC personnel may access others' files when necessary for the maintenance of a system.

# SYSTEM NEWS/NOTES

## TERMINAL MAINTENANCE

As a service to the University community, UCC offers yearly maintenance contracts on computer terminals and microcomputers at the rates shown below. A small booklet describing installation and in-warranty service, service responsibilities, and exclusions for these contracts is available from Dan Whealdon, 376-8153.

These rates are applicable to University departments and affiliated agencies in the Twin Cities metropolitan area only. Other rates may be established by calling and requesting a quote from Dan Whealdon, 376-8153, or Abe Franck, 376-7291.

<i>Teletypewriters</i>		<i>Research, Inc., Teleray</i>	
33ASR	\$200.00	3500	\$202.00
33KSR	\$200.00	3700	\$202.00
35ASR	\$220.00	3800	\$202.00
35KSR	\$200.00	3900	\$252.00
43KSR	\$184.00	1061	\$153.00
<i>DECwriter</i>		<i>Hazeltine</i>	
LA34	\$162.00	1200	\$252.00
LA36	\$192.00	1500	\$152.00
LA120	\$252.00	2000	\$280.00
<i>TI Silent 700</i>		<i>Control Data Corporation</i>	
735	\$262.00	713	\$227.00
743	\$198.00		
745	\$200.00		
<i>Data Products Portacom</i>		<i>Data Media</i>	
PC-8110	\$237.00	1521	\$153.00
<i>Acoustic Couplers</i>			
All	\$25.00		
<i>Terak</i>	<i>model</i>	<i>first</i>	<i>subsequent</i>
		<i>year</i>	<i>years</i>
Graphics Display Terminal	8510A	\$495.00	\$660.00
Flexible Disk System	8512	\$162.00	\$216.00
Extended Chassis Subsystem	8515	\$243.00	\$324.00
<i>Apple II</i>		<i>first</i>	<i>subsequent</i>
		<i>year</i>	<i>years</i>
Apple II Microcomputer System		\$195.00	\$250.00

## MICRO FLASH

Our Microcomputer Group has just finished development of a Tektronix emulator package for the Pascal Apple. Two PRELIMINARY versions are available, one for 300 baud and one for 1200 baud. If you have an immediate need for either of these programs, we are looking for a few sites to do testing prior to their release. Contact Michael D. Collins, 376-8806.

## APPLE/TERAK SPEED TEST

In an effort to measure the relative speed of real and integer operations in Pascal programs under the UCSD Pascal operating systems, our Microcomputer Group ran the following test programs on an Apple II and a Terak.

These programs were of the general form  
 for I : 1 to 30000 do  
 operations;

Five tests were involved for each machine:

1. real add and subtract,
2. real multiply and divide,
3. integer add and subtract,
4. integer multiply and divide, and
5. integer multiply only.

All these tests involved, in addition to the above operations, looping and variable fetching and storing. The times given are crude estimations of the relative speed of the operations being tested.

Test 1: Result : 0.0;

for I : 1 to 30000 do

Result : Result + 1000.0 - 900.0;

Terak: 36 sec.

Apple: 90 sec.

Test 2: Result : 1.0;

for I : 1 to 30000 do

Result : Result \* 1000.0 / 999.0;

Terak: 40 sec.

Apple: 192 sec.

Test 3: Result : 0;

for I : 1 to 30000 do

Result : Result + 10 - 9;

Terak: 23 sec.

Apple: 29 sec.

Test 4: Result : 1;

for I : 1 to 30000 do

Result : ( Result \* 3 ) div 2;

Terak: 32 sec.

Apple: 67 sec.

Test 5: Result : 1;

for I : 1 to 10000 (\* note change in loop \*) do

Result : Result \* 3;

Terak: 7 sec.

Apple: 15 sec.

You may draw your own conclusions about the validity and value of these test programs. We thought they might be of interest to our readers.

These same tests were also run on a new microcomputer utilizing the Intel 8086 CPU and software floating point arithmetic with the following results:

Test 1: 18 sec.

Test 2: 50 sec.

Test 3: 1 sec.

Test 4: 2 sec.

Test 5: 1 sec.

## EUNICE WITHDRAWN FROM SHEPHERD LAB VAX

In an article titled "Looking Backward" in last month's *Newsletter*, a short description of applications software available on the Shepherd Labs VAX-VMS system included Eunice, a Unix under VMS emulator facility. Eunice had also been listed in writeups describing the Shepherd Labs VAX.

We have worked with Eunice for several months and have determined that, as a "Unix and VMS" system, Eunice has serious shortcomings. We have therefore decided to withdraw it from the system.

## THANKSGIVING OPERATING HOURS

Thursday and Friday, November 26 and 27, are official University holidays. The following hours will be in effect at UCC: Lauderdale down 0400 Thursday, Nov. 26, up 0800 Friday, Nov. 27; Experimental Engineering down 2400 Wednesday, Nov. 25, up 1600 Sunday, Nov. 29. Have a good Thanksgiving!

## VAX CHARGES

All connect time charges for the VAX-VMS at Shepherd Labs are billed at 1200 baud, whether you are connected at 1200 or 300 baud. It is impossible to distinguish 1200 and 300 baud from the dayfiles. If you have any questions about your billing, contact Jack Schwab, 373-4548.

## SIR SEMINAR

Professor Gary D. Anderson will offer a SIR 2.0 seminar on December 16, 17, and 18, 1981 at the University of Minnesota in Health Sciences Unit A. If you are interested, write or phone Mr. Anderson at Box 1404, Evanston, IL 60204, (312)475-8332.

## HEALTH SCIENCE DATA SERVICES

The Health Science Computer Service Center at the University of Minnesota has a full-time staff of keypunch operators who provide keypunching, verifying, and data coding services. The service, located in D385 Mayo Memorial Building, is open from 8 a.m. - 4:30 p.m., Monday through Friday. For additional information and estimates, call Lee Croatt, 373-7714.

## OPEN HOUSE

A dedication ceremony and open house will mark the opening of the Health Sciences Resource Center, including the Health Sciences Computer Instructional Labora-

tory, at 1:30 p.m. Wednesday, November 11. The dedication will take place in 2-470 Phillips-Wangensteen Building. The keynote speaker will be Dr. William G. Cooper, acting director of the Audio-visual Center of the National Library of Medicine. He will speak on "Audio-visuals in Health Science Education." An open house in the center, including demonstrations of self-instructional materials and computer programs, will follow the dedication ceremony.

## SHORT COURSES

The University Computer Center offers short courses each quarter; we charge no fees, require no registration, and offer no credit for attendance.

Some of our courses are offered through Continuing Education & Extension; the Extension Division charges a small fee for these and requires registration. For information call 373-3195.

The remaining fall quarter courses are listed below. For more information about course content, see WRITEUP(CLASSES). If you have questions not answered by this schedule or by WRITEUP(CLASSES) call 373-4360.

- \* Introduction to VAX  
3:15-5pm, Nov 23-Dec 9 (MW), Arch 30
- Introduction to the CRAY 1B  
3:15-5pm, Nov 30-Dec 4 (MWF), FolH 105
- Text Processing on Micros  
3:15-5pm, Nov 16-Dec 7 (M), MechE 102
- Programming Techniques on Micros (Extension)  
6:15-8pm, Nov 16-18 (MW), AkerH 215
- SCSS  
3:15-4:30pm, Nov 16-25 (MWF), Arch 60
- SIR  
3:15-5pm, Nov 30-Dec 9 (MWF-MTW), Arch 60
- Graphics IV (CORE 79)  
3:15-5pm, Nov 16-20 (MTThF), Arch 45
- FORM  
3:15-5pm, Nov 16-20 (MWF), Arch 30
- Introduction to Programming  
3:15-5pm, Nov 17-Dec 8 (TWTh), AkerH 309

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\* indicates change from first publication.

## FOR SALE

DATA-100 Key to Disk and RJE, eight data entry stations, printer, card reader, five Mb of disk, nine track 800 bpi mag tape and RJE controlling CRT. CDC200UT and HASP emulators. For details, contact Andy Lopez, U of M Morris Computer Center, (612) 589-2234.

# UCC NEWSLETTER QUESTIONNAIRE

The UCC Newsletter is an informal, user-oriented, monthly publication of the University Computer Center. In order to better serve you, our readers, we have constructed this short questionnaire to more clearly define our audience, its needs, and its desires. Please take a few minutes to fill out the questionnaire for both our information and, we hope, your benefit. It can then be folded in half, stapled or taped, and returned to UCC. Thank you for your help.

Your department: \_\_\_\_\_

- Status (circle appropriate number):
1. Faculty
  2. Staff
  3. Graduate student
  4. Undergraduate
  5. Other (please specify)

- Computer Information Level (circle appropriate number):
1. Know two or more languages or programs well; use computer daily
  2. Know one language or package well; use computer often
  3. Casual user of simple programs or applications packages
  4. Beginner in computing
  5. Uninformed about computing

Newsletter contents: Please number in order, with 1 = most important/interesting and 8 = least important/interesting, the significance for *you* of the contents of the newsletter.

- \_\_\_\_\_ "Feature" articles about some aspect of UCC (people, services, equipment, etc.)
- \_\_\_\_\_ News/Notes about changes, special services, etc.
- \_\_\_\_\_ List/Description of UCC short courses
- \_\_\_\_\_ Suggestion box
- \_\_\_\_\_ "Want ads"
- \_\_\_\_\_ Statistics information (the "numbers" that tell you how well the systems have been functioning)
- \_\_\_\_\_ Operations information (listing of operating hours and on-campus labs)
- \_\_\_\_\_ UCC Phone list

What other/different information would you like to see in the Newsletter?

What information (if any) do you think could be modified in or eliminated from the Newsletter?

What other changes would you suggest for the Newsletter?

Other suggestions? Comments?

## PHONE NUMBERS

Budgets .....	373-2521	HOURS-line (recorded message) .....	373-4927
Computer-Aided Instruction .....	376-2975	Image Processing .....	376-2895
Computer Hours (recorded message) .....	373-4927	Information, Experimental Engineering .....	373-4360
Computer Store .....	373-4877	Information, Lauderdale .....	373-4912
Consulting		Information Systems .....	376-1764
HELP-line .....	376-5592	Instructional Labs .....	376-3963
9 a.m.—5 p.m., Monday—Friday		Job Status, ExpEng (recorded message) .....	373-4994
Business Data Products .....	376-1761	Lauderdale Computer Room .....	373-4940
1-3 p.m., Monday—Friday		Lauderdale Operations Manager .....	373-4920
Statistics Packages .....	376-5062	Lauderdale Services .....	373-4995
1-2 p.m., Monday—Friday		Lauderdale Services Manager .....	373-7538
Data Bases .....	376-1761	Lauderdale Users' Room .....	373-4921
1-3 p.m., Monday—Friday		MECC Liaison .....	373-4573
Microcomputers .....	376-4276	Microcomputers .....	376-4276
10-12 a.m. and 2-4 p.m., Monday-Friday		Newsletter Subscription .....	376-4668
Humanities .....	373-5780	Permanent File Restoration .....	376-5605
10:30-11:30 a.m., Monday, Wednesday, Friday		Professional Services Division (PSD) .....	376-1764
Contract Programming .....	376-1764	Project Assistance .....	376-1764
Data Base Applications .....	376-1764	Program Librarian .....	376-1636
Educational Services .....	376-3963	Programming Languages .....	376-7290
EDUNET Liaison .....	373-7745	Reference Room .....	373-7744
Equipment Purchase .....	376-8153	Remote Batch (RJE) Services .....	376-3963
Experimental Engineering I/O .....	373-4596	Short Courses .....	373-4360
Field Engineering .....	376-7584	Shuttle Bus Service .....	376-3068
Field Engineering—Service Contracts .....	376-1313	System Status (recorded message) .....	373-4927
Graphics Software .....	376-1849	Tape Librarian: see Lauderdale Services	
HELP-line .....	376-5592	Text Processing Services .....	376-2943
9 a.m.—5 p.m., Monday—Friday		User Accounts .....	373-4548
		User Services .....	376-3963

## OPERATING HOURS

	Cyber 74/730	MERITSS (Cyber 172)	VAX
M-F	8 a.m. - 4 a.m.	7:45 a.m. - 1:30 a.m.	8 a.m. - 6 a.m.
Sat	8 a.m. - 4 a.m.	7:45 a.m. - midnight	24 hours
Sun	4 p.m. - 1 a.m.	4 p.m. - midnight	24 hours

## PUBLIC LABS—TWIN CITIES CAMPUS

Location	Batch	Interactive	Micro	Location	Batch	Interactive	Micro
<i>East Bank</i>				<i>West Bank</i>			
Arch 160		X	X	BlegH 140		X	
CentH		X		MdbH		X	
ComH		X		OMWL 2	X	X	
DiehlH 270		X		SocSci 167, 1009	X	X	
ElecE 38	X			<i>St. Paul</i>			
EltH 121, 125		X		BaH		X	
EltH N640	X			BioSci 257	X		
ExpE 130	X			ClaOff 125	X	X	
FolH 304a		X	X	McN	X		
FrontH	X	X		NorH 24	X		
KoltH S191	X			<i>Lauderdale</i>			
LindH		X		Users Room	X		
MasCan 39	X						
Mayo D388	X						
MechE 308		X					
MinMet 321	X						
Physics 69	X						
SanfH		X					
TerrH	X	X					
VincH 4		X					
WaLib 204		X					
Zoology	X						

# P ROFESSIONAL S ERVICES D IVISION

statistical analysis: full range of services available  
system analysis and design: analysis of existing systems; design of new systems  
financial analysis: forecasting, accounting  
data base development: design and implementation using state-of-the-art technology  
tape conversion: conversion of off-site tapes to UCC internal format  
customized programming: COBOL, FORTRAN, Pascal for virtually any application  
research applications: scientific or social research environments



If you qualify for a University Computer Center account, and are interested in our services, please contact us.

376-1764 • 227 Experimental Engineering • 208 Union St. S.E.

## University Computer Center Newsletter

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

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