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# University Computer Center Newsletter

UNIVERSITY COMPUTER CENTER

UNIVERSITY OF MINNESOTA-TWIN CITIES

MINNEAPOLIS, MINNESOTA 55455

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## bulletins

!!  
 The first user's meeting of the new school year will be on Thursday, October 18, from 3:15 - 5:00 PM in Room 24 Architecture. The agenda will include reports on the new software modifications, on the MERITSS hardware upgrade, (6400 to Cyber 170), on magnetic tape and disk systems, and on other features we have had questions about. Join us for coffee, cookies, and discussion.  
 !!!

### TELEPHONE CONSULTING

GENERAL CONSULTING	9AM-5PM M-F	376-5592
Business Data Products	10-11AM M-F	376-1761
	1-2PM M-F	376-1761
COBOL	DMS-170	KWIC
QWIC QWERY	Record Manager	SIR
SORT/MERGE	SYSTEM 2000	TRIAL
Statistical Packages	1-2PM M-F	376-5062

## UCC newsletter

Volume 13                      Number 10                      October, 1979

Director: Peter C. Patton  
Editor : Amy Koepke

Comments about the content of this newsletter, or suggestions for changes may be directed to the editor, 235a Experimental Engineering, 612/373-7744.

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, or national origin.

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SYSTEMS PROGRAMMER NEEDED, SEE PAGE 92.  
OTHER UCC JOBS AVAILABLE.

# computing grants

An important change has been made in the Computing Grants program at the University. A review of the first three months of the Grants program (as described in the June 1979 Newsletter) has shown that the method of apportioning non-funded graduate student thesis-related grants ("G" grants) has caused some hardship. Therefore, the policy for "G" grants has been adjusted. "G" grants continue to receive an initial \$150.00 allotment. However, these grants are now renewable, in \$300.00 increments, upon application. "G" grants totalling more than \$750.00 (that is, the initial grant plus two increments) will undergo committee scrutiny to assure that the best use is being made of University resources.

These procedures were put into effect (non-retroactively) on October 1, 1979. Funds for these grants must be allocated from the University's instructional computing budget since computer usage involves the expenditure of real dollars. Limitations on grants are necessitated by the fact that the instructional computing budget is not inexhaustible. Graduate students continue to be encouraged to seek their own funding for thesis-related projects. It is hoped that the adjustment in the grants program will enhance the availability of instructional computing for thesis-related topics while keeping with the very real budgetary restrictions.

The chart below was originally printed in the June 1979 Newsletter. It reflects the Grants program with adjustments. New sections are underlined.

S.P. Nachtsheim, 373-7878

### grants summary

Program Title	Grantees	Type of Grant Support	Estimated Number of Grantees	Range of Grant	Support After Grant Termination
S	small research with no support	both computing and supplies costs	1,000	normally, maximum grant of \$50, renewable to \$200 maximum	user 100% support both for computing and supplies
R	medium and large users	computing costs only (on 1:1 basis); full supplies support by users	200	up to \$300	user 100% support or through Special Grants Program
(Special Grants)					
L	large users	user support for computing costs would be more than 50%; supplies support 100% by users	30-40	no upper limit	full user support
G	graduate students thesis-related computing	grants for both computing and supplies	300-400	up to <u>\$150</u> <u>renewable</u> <u>upon</u> <u>application</u>	user 100% support both for computing and supplies or by arrangement with thesis advisor

## summer wrap-up

### NOS 1.3:

The NOS 1.3 operating system was tested during Sunday production hours through part of July and August. On September 3, the new system was brought up permanently. WRITEUP(UPGRADE) was resurrected early in the summer; it contains information about the new system, suggestions for changes, and warnings about possible problems. If you have been away for the summer, we suggest that you get a copy of WRITEUP(UPGRADE) and read it over. You may be able to avoid problems when you try to run old jobs.

### NEW EQUIPMENT:

Two 885 disk drives (with the associated controller) were delivered in July. The July issue of this newsletter (page 58) described the new drives and explained the differences between the 885's and the 844 drives. The July issue of the UCC newsletter (page 58) contains comparison tables that you may find useful. In the July issue, we also announced that special pack PF01 would be removed from service at the end of September. If you had files stored on PF01 and missed this announcement, you should note that your files were loaded to the default permanent file packs at the time PF01 was removed from service. See page 59 of the July newsletter.

### PERMANENT FILE ARCHIVING AND BACKUP:

The July newsletter contains a review article on our procedures for permanent file backup and archiving. If you have any questions about recovering damaged files, archived files, or files that "disappeared" when accounts were closed, please see pages 59 through 60.

### MERITSS:

The MERITSS system was upgraded this summer; a CDC Cyber 170-720 was installed in late August. MERITSS will keep its stable KRONOS operating system during fall quarter. Depending on our experience with NOS 1.3 on the Cyber 74/172 this fall, NOS may, or may not, be brought up on MERITSS over winter quarter break.

### NUMBER CRUNCHERS:

If any of you have projects that qualify as "number crunchers," please see the August newsletter (page 66). We have worked out some procedures for running jobs on non-University machines.

### NEW AND MODIFIED PRODUCTS:

XEDIT 3.1 is available for testing as a FUTURE product; see the descriptions available in WRITEUP(XEDIT=FUTURE).

IMSL Edition 7 is the current IMSL library.

The LINPACK package of Fortran subroutines was installed in August. (See page 68 in the August issue.)

### ACCOUNTING:

We no longer monitor the usage of accounts on the Cybers. This means that we no longer set

a maximum usage and cut off your accounts when this amount is reached. You can quite easily monitor your own accounts with the ACCSTAT utility. For information, see the ACCSTAT writeup.

## documentation

Almost a year has passed since we asked for your comments, criticisms, and suggestions on the documentation that we produce at UCC. We were particularly interested in information that would help us devise a cohesive, long-range plan for documentation.

We received several responses from users. Most of the comments and suggestions have already been incorporated in preparing documentation. This article summarizes our progress.

### ▷ User's manual

The UCC User's Manual (\$5.00, University bookstores), was published in October 1978. This volume is the focus of all documentation produced by UCC. It provides a wealth of information about computing and about UCC facilities for novice and expert, including: describing documentation available; defining useful terms and concepts; listing facilities available to users; and describing the path of jobs through the computer system.

The User's Manual is dated because our Cyber 74 and 172 went from the KRONOS to the NOS operating system in the fall of 1978. Although this change invalidated a few examples of control statements in Chapter 6, the concepts described in the earlier chapters and other information in Chapter 6 are still accurate. Since the instructional computer system, MERITSS, will probably also go to NOS in late December, the overdue first addendum to the User's Manual will be published for Winter quarter.

### ▷ Introductory

Five free, introductory publications have been revised and reissued for fall quarter:

1. A Guide for the New User, formerly titled For the New User: A Complete Guide. This booklet introduces new users to the facilities and functions of UCC.
2. Guide to Cyber Interactive Computing. This booklet describes the interactive services of the Cyber 74/172 systems, or MIRJE (Minnesota Interactive Remote Job Entry).
3. Guide to Cyber Batch Computing, formerly titled The Student Guide to Batch. This guide provides a concise, cookbook approach to batch processing for those with no prior CDC computer experience. It outlines job structure, policies, and procedures.

4. Cyber Instant. A pocket-sized memory jogger for frequently referenced facts about software and facilities, including a list of NOS control statements.
5. MERITSS Instant. This booklet explains how to use interactive services of MERITSS (Minnesota Educational Regional Interactive TimeSharing System) at the University of Minnesota.

Student users may receive one or more of them from the instructor in a computer-related course. Appropriate copies will be distributed in UCC short courses. If you are a non-student user, you should ask for copies when you apply for a user number. Copies of all five documents are available, free, in 140 Experimental Engineering.

#### ▷ detailed

In addition to the introductory booklets, the User's Manual underlies four sets of detailed documentation:

1. Supplements to the User's Manual,
2. Reference manuals produced by software manufacturers,
3. UCC's published writeups,
4. Machine-retrievable documents (WRITEUPS).

The User's Manual supplements occupy a major position in our long-range plan for documentation. Several supplements to the User's Manual are still in the planning stages, and others have been extensively rewritten and brought up to date, and one new supplement has been written and will be available late in the fall. The supplements that will be available this fall are:

1. A Guide to Magnetic Tape Usage, Second Edition (1979)
2. A Guide to Subprogram Libraries (1979)
3. A Guide to Record Manager (1977)
4. A Guide to Graphics Facilities (1978)
5. A Guide to Computing in the Humanities (late 1979)

The following supplements will be published in the first half of 1980:

1. A Guide to Mathematical and Statistical Packages
2. A Guide to Special Purpose Programs
3. A Guide to Editing Programs

Late in 1980, A Guide to Permanent File Usage will be published. The Guide to Subprogram Libraries is available, free, in 140 Experimental Engineering. The other supplements may be purchased from UCC's computer store (with a journal voucher) or from the University's bookstores.

The User's Manual is an important background for reference material published by vendors. Vendor-produced manuals may be purchased from UCC's computer store or from the University's bookstores. If you are unable to find materials, call the UCC Reference room for further help. (Since the UCC moved to the NOS 1.3 operating system on September 3, 1979, users of the Cyber 74/172 complex may find the CDC NOS Version 1 Reference Manual, revision H, particularly useful.)

The remaining two sets of documents that are part of the User's Manual structure are the published writeups (e.g., PLOTPAC) and the machine-retrievable writeups (e.g., UPGRADE). Although UCC does charge for some published writeups, most of them are free and are stored on the document shelves in 140 Experimental Engineering. These writeups describe many types of software on the UCC systems. System 2000 user aids, graphics software guides, statistical program guides (including SPSS and BMDP updates), text formatting and editing documents, and guides for high-level languages such as Pascal, MNF, and SNOBOL are examples of the types of writeups available. Some of these printed writeups are also machine-retrievable.

The machine-retrievable writeups also describe UCC software, but have the additional advantage of being readily available at a terminal or by means of a batch job. Since these writeups are kept on the computer system, they are easily modified, corrected, and brought up to date. They also form a source of quick reference information that may be consulted without having to obtain the complete document in printed form. These writeups can be accessed by using the WRITEUP control statement. For a complete description of the WRITEUP facility, see the related article in this newsletter.

#### ▷ standards

One comment that we hear most frequently is that a writeup is obsolete or out of date. To correct this, all new issues of documentation are now dated, and we've started to review every publication at least once a year. The machine-retrievable writeups are included in this review process since they are the source of the most current information on a particular topic. "Reader Comment" sheets have been inserted in the back of our larger documents. These sheets will help us put together a list of corrections and additions for the next printed edition of a document. Please use these sheets to send us your comments.

We are attempting to standardize our documentation; standardized material is easier to use and revise. We have tried to use a consistent set of terms and abbreviations (see the User's Manual glossary) in our publications. Also, all documents in a category (e.g., high level language) will have a similar layout and cover. Many larger publications are indexed by section number so that the index remains accurate even when the document itself is modified.

#### ▷ displays

This fall, we are installing bulletin boards and document shelves in each remote entry site and instructional lab. We will post information about UCC short courses, an index of WRITEUP listings, a schedule of consulting times and locations, a list of UCC phone numbers, and a set of introductory documents, useful to new users. The shelves will contain copies of the current UCC newsletter, the Cyber Instant or MERITSS Instant, and the Guide to Cyber Batch Computing or the Guide to Cyber

Interactive Computing. Other pertinent materials will be placed on these shelves from time to time. The material on the shelves is free.

If this discussion of our activities has left any questions unanswered or if you have any comments on our activities, please call or come to 203 Experimental Engineering.

M.C. Boyd, 373-2522

will give you the index listing for those documents specified by "namei."

Any of the following options can be included after the slash (/) in the WRITEUP control statement; the options are separated by commas:

L=ofn

You can use the L= parameter to specify an alternate output file. For example:

```
WRITEUP(CATLSYS/L=LIST)
```

will write the document for CATLSYS to a file named LIST. If no file is specified, the default is OUTPUT.

PT=TT or PT=LP or PT=AS

You can use the PT= parameter to change the default printer type. If you are working from an interactive terminal, the default printer type is TT. Otherwise, the default is LP for line printer. WRITEUP will convert document files, depending on the type of file (see the INDEX listing) and the specified (or default) printer type.

If you specify PT=AS, WRITEUP will produce an upper/lower case document formatted for the line printer. If you use PT=AS, you must specify an output file with the L= parameter and then route the output file. For example:

```
WRITEUP(APPLE=*/L=LIST,PT=AS)
ROUTE(LIST,DC=PR,EC=A9,TID=site)
```

Note that you must specify both DC=PR (for the line printer), and EC=A9 (for the upper/lower case printer).

D=yymmdd

You may specify a date parameter on the WRITEUP statement to get only those entries that have been changed after that date. For example,

```
WRITEUP(CONTROL=*/D=790701)
```

will print out only those parts of the CONTROL document that have been changed on or after July 1, 1979.

LO=S

The LO=S parameter controls the format of WRITEUP(INDEX). Specifying LO=S on the WRITEUP statement produces a short index list; it includes only the names of the WRITEUP documents.

SR=n

The interactive user can specify the SR parameter on the WRITEUP command to activate scroll mode. When in scroll mode, WRITEUP stops the output once n lines are printed. Printing continues when the RETURN key is pressed. For example,

```
WRITEUP(EXAMINE/SR=20)
```

will write 20 lines to the screen and then stop, waiting for a carriage return.

## WRITEUP

A large number of machine-retrievable documents and a special utility program called WRITEUP are features of UCC's documentation service. The WRITEUP documents cover varied topics. For example, UPGRADE describes features and changes in the new operating system. MOVE explains the control statements needed to move files between computer systems. The PTR documents describe known software bugs. You can obtain a complete list of control statements from CONTROL, or a description of subroutines for plotting on Tektronix terminals from TEKLIB.

For the most part, WRITEUP documents are produced by UCC and usually describe changes made to operating system software. However, indices and bulletins can also be obtained through WRITEUP. Many of the longer documents are divided into sections ("indexed") for ease of reference.

You can obtain copies of these machine-retrievable documents by using the WRITEUP control statement. The general form of the control statement is:

```
WRITEUP(name1,name2,.../options)
```

where "name1,name2,.. " are the names of specific documents. The names can be specified in several ways:

1. If you enter "name" only, you will get a copy of the specified document or, if the document is indexed (subdivided), you will get a copy of the index only.
2. If you enter "name=\*" you will get a copy of all the subdivisions of the indexed document "name."
3. If you enter "name=sub1+sub2+...+subn" you will get a copy of only those subsections of "name" specified by "sub1," "sub2," and so on.

If you use the control statement without parameters:

```
WRITEUP.
```

you will get a description of the WRITEUP statement. If you use this form:

```
WRITEUP(INDEX)
```

you will get a listing of the names of all the WRITEUP documents. The form:

```
WRITEUP(INDEX=name1+name2+...)
```

The full WRITEUP index lists several properties of each document, including the following: name, width, length, date last modified, format, whether the writeup is indexed, and a one-line description.

If you do not yet have access to the computer system, or if you are using the MERITSS system and need printed copies of long writeups, the UCC Reference Room staff can provide you with a limited number of printed WRITEUPS. Call the Reference Room, 235a Experimental Engineering, 373-7744, and ask for what you need.

M.C. Boyd, 373-2522

## PTR's

Do you have any problems with the software system at UCC? Have you discovered bugs in the application packages? If so, you should look into the Program Trouble Reports - PTRs for short.

UCC's Systems Services, through its PTR Coordinator, handles all suggestions and complaints from users about software problems. To make a report, pick up a PTR card from a consultant or at a staffed I/O station. Fill out and return the cards to the PTR Coordinator, 227 Experimental Engineering. Please attach listings and dayfiles to the cards, if possible. If you would like a reply, simply indicate this on the card.

Upon receiving your trouble report, the PTR Coordinator will contact the person responsible for the software. The support person decides whether to fix the problem, or to document it as a special case.

The PTR Coordinator maintains six PTR writeups that describe known software bugs. As new bugs are found, these reports are updated accordingly. The PTR writeups are:

WRITEUP(PTRNOS)  
 WRITEUP(PTRS2K)  
 WRITEUP(PTRFORT)  
 WRITEUP(PTRSTAT)  
 WRITEUP(PTRM77)  
 WRITEUP(PTRMISC)

If you have any questions regarding the PTRs, please call me

L. Hu, 376-5262

## system 2000

With the recent operating system changes, a change has occurred in the error flag numbers returned in the reference address field that is printed out with the message "FATAL ERROR TRAPPED." The new error flag values and their meanings are documented in the NOS Reference Manual, Volume 2, page 2-6-5, and in the table below:

error flag	description
----	-----
1	Arithmetic error; refer to the NOS Reference Manual, Volume 1, Section 3, for a description of the modes.
2	A program stop was encountered by the CPU.
3	PPU abort; a PPU program requested that the job be aborted (CIO, PFM, ...).
4	CPU abort; the job issued an ABT request.
5	PP call error; the job made a non-existent or illegal system request.
6	Time limit; job is allowed an additional one to ten seconds of CP time for error processing.
7	File limit; user attempted to assign more active files to the job than are allowed by the validation parameter.
10B	Track limit; the job requested mass storage space on a device that had none available.
11B	SRU limit; job is allowed an additional 10 SRUs to complete error exit processing.
12B	Forced error.
13B	The operator dropped the job.
14B	Job rerun.
15B	Operator killed the job.
16B	Subsystem abort.
17B	ECS parity error.
20B	CPU or CM parity error (Cyber 170 series only).
21B	System abort.
22B	Override of error condition.

These new error flags supercede those given in the System 2000 System Support Manual under the section called ERRORS (Table 1, page 2). You should use the table given above, or the NOS Reference Manual, Volume 2, page 2-6-5 in all situations where the content of the 20-digit octal number printed with message -821- occurs and needs to be decoded.

J.C. Cosgrove, 376-1761

PRODUCTION USAGE SUMMARIES: Cyber 74/172

	Cyber 74/172 August, 1979	Cyber 74/172 August, 1978
System resource units (SRU)	1,195,579 (1,544,902)	1,058,157 (1,230,263)
Batch jobs and MIRJE sessions	95,874 ( 108,813)	96,443 ( 109,664)
Central processor hours inc. DELAY	172/143 ( 187/257)	218/48 ( 252/118)
DELAY queue processor hours	58/15 ( 59/30 )	79/0 ( 83/0 )
MIRJE terminal hours	13,859 ( 16,285)	8,056 ( 8,916)
Mass storage transfers (KPR)	380,538 ( 483,750)	350,077 ( 443,507)
Magnetic tape transfers (KPR)	7,544 ( 11,877)	6,854 ( 9,740)
Pages printed, charged from UCC	774,174 ( 893,021)	965,018 (1,091,013)
Cards punched	427,896 ( 439,625)	374,336 ( 400,358)
Microfilm frames produced	23,132 ( 378,317)	25,685 ( 380,129)
Number of terminal sessions	33,407	
Status plotting production (feet)	7,591	8,332
Tapes mounted	12,963	12,410
Average file storage (char)	2,121.9 million	2,025.2 million
Mean time between failures	36.7/55.1 hours	9.8 hours
Available during scheduled hours	98.7/98.9 percent	97.3 percent

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

DOWNTIME SUMMARY: September, 1979 (Column 1, Cyber 74 : Column 2, Cyber 172)

	0800-1800 M-F		other		total	
Total possible scheduled uptime hours	190.0	190.0	300.3	300.3	490.3	490.3
Total downtime hours (see Schedule A)	2.1	1.5	7.1	10.3	9.2	11.8
Total uptime hours	187.9	188.5	293.2	290.0	481.1	478.5
Uptime (percent)	98.9	99.2	97.6	96.6	98.1	97.6
Average downtime per occurrence (min)	11.6	8.2	60.6	310.0	30.7	54.6
Mean time between failures (hours)	17.3	17.3	42.9	150.2	27.2	37.7
Subsystem failures						
SUPIO	5	-	0	-	5	-
TELEX	3	2	0	0	3	2
EXPORT	2	-	0	-	2	-

Schedule A: downtime hours

	Number		Total hours		Average minutes	
(1) Preventive maintenance over-runs	1	0	0.1	0.0	4.0	0.0
(2) Software related problems	11	10	2.2	1.4	12.1	8.5
(3) Hardware related problems	6	1	6.9	1.9	69.1	115.0
(4) Indeterminate problems	0	0	0.0	0.0	0.0	0.0
(5) External Problems	0	2	0.0	8.5	0.0	255.0

PRODUCTION USAGE SUMMARIES: CDC 6400

	August, 1979	August, 1978
Number of jobs run	86,871	86,732
Central processor hours	107.1	98
MERITSS terminal hours	10,377	10,585
Number of terminal sessions	20,327	19,538
Maximum number of simultaneous users	65	66
Average file storage (char)	387.9 million	344.3 million
Mean time between failures	33.6 hours	98.8 hours
Available during scheduled hours	98.9 percent	99.2 percent

## for sale

### Word Processor

CPT 4200 series cassette system; to University departments only. If interested, call Ron Fleagle at 376-5263. This system was purchased in 1976; it will be available at the end of October.

### Diskettes

Ten unused Shuggart diskettes. SA-15 double sided media. \$50 or best offer. Call 373-9957.

## text processing

As we reported last month, UCC has a committee actively studying word processing and phototypesetting, and ways of incorporating the Cybers into these processes. The committee is currently working with University Printing and Graphic Arts on the phototypesetting aspects of this study. We are looking at communicating word processors. We invite interested users to tell us of their needs, ideas, and suggestions. The committee co-chairmen are Thea Hodge (373-4599) and Mike Frisch (376-1636).

## help wanted

UCC needs a systems programmer to work in the data communications area. Major tasks include the maintenance and enhancement of existing programs, particularly remote job entry systems developed for PDP-11 computers under the RT-11 operating system.

UCC also uses PDP-11 computers for front-end processing on Control Data Cyber 74 and Cyber 172 systems. Maintenance and enhancement of these front-end programs would be the other major area of work.

Basic qualifications should include a minimum of one year's experience on mini-computer data communications, using assembly language programming. Experience with the PDP-11, including the RT-11 operating system, would be helpful.

This person would be expected to become knowledgeable in Cyber ITX assembly language in order to modify the remote job entry subsystem. The annual salary range is from \$17,064 to \$22,152, depending upon education and experience. Contact

A. Nelson, 376-5607

### RETURN TO:

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

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11 WALTER LIBRARY  
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