

MITC  
87-79

CONTENTS

BULLETINS

MNF P. 72  
Version 5.1 will be made current in September.

NEW INTERPRETER P. 73  
Progress report; try it, you'll like it

A COMPUTER TERMINAL FOR THE BLIND P. 74

CONSULTING POLICY SET P. 75  
UCC policy for statistical package consulting presented

BRIEF NOTES P. 75  
XEDIT 3.0.0 will become current on both machines  
WRITEUP, AFLISTS lists files archived over the past year  
RUN will be dropped in September

THE SUGGESTION BOX P. 76  
Cyber 74 utilization, 029 punch conversion, recorded messages, confusing messages, size of WRITEUP files, permanent file utilities, problem with clocks, and one thank you.

NEW PROGRAMS AVAILABLE P. 77  
Finite element programs offered for use by Prof. Gustafson, AgEng Dept

PRODUCTION USAGE SUMMARIES P. 78

SUMMER SESSION SHORT COURSES P. 79

DOCUMENTATION P. 80

OPERATIONS P. 81

A STATISTICAL REVIEW P. 82  
Cyber 74 production usage summaries for fiscal year 1976-77

Operating Hours  
Please note the following change in our operating hours. The Cyber 74 will now shut down at 0115 Monday morning instead of 0200. See WRITEUP, HOURS, or the operations page of this newsletter for a complete hours schedule.

Statistical Package Users  
UCC policy formally stated for statistical package consulting; see page 75.

ON SEPTEMBER 13  
The current MNF will become PAST on both machines.  
RUN and RUN23 will disappear on both machines.  
RUN, RUN23, and PAST, MNF relocatable binaries will no longer work on the 6400. They must be re-compiled.

LAUDERDALE PARKING COMPLAINTS? see page 77.

UCC newsletter

Editor : A. Koepke  
Comments about the content of this newsletter, or suggestions for changes may be directed to the editor, 235a Experimental Engineering, 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, age, or national origin.

## M N F

### Version 5.1 to become current in September

During the summer, we plan to make available a new version (5.1) of the MNF compiler and its execution library on the Cyber 74 and the 6400. It is planned to --

- (1) Replace the student BATCHER compiler by Version 5.1 configured as BATCHER
- (2) Replace FUTURE(TSF) by Version 5.1 configured for time-sharing
- (3) Replace FUTURE(MNF) by Version 5.1.

These are the three compilers that will become the current versions on September 13, 1977.

These three compilers will be derived from the same source so that behavior should be predictable when a program is transferred from one to the other. The new BATCHER compiler will contain the same student limitations as the previous BATCHER. FUTURE(TSF) will be identical to FUTURE(MNF), except that some features will be removed from TSF in order to reduce compilation storage requirement. These features are --

- (a) No cross reference map--MNFR) option
- (b) No object code listing--MNFO) option
- (c) No compiler dayfile messages
- (d) Smaller maximum statement size (this is not likely to affect anyone)
- (e) No one-statement DO loop optimisation - this means that some jobs will execute slower under TSF than under MNF.

The identical execution library will be used by all three configurations of MNF Version 5.1.

This new version is already in use at over 60 other computer installations, and is the most reliable version of MNF ever to be released (this does not mean that it contains no errors, but rather that we do not know of any). This version is effectively the same as the FETCH(MNF) that has been available and advertised, for about two years.

The current version of MNF will remain available for some time, but errors will be corrected only in Version 5.1. Users wishing to run their jobs on the new compiler should note that there are differences in design philosophy between the old and new versions. These differences arise from a desire to make MNF be more compatible with FTN Version 4 and with industry standards for Fortran. Thus, MNF Version 5.1 uses Record Manager. In order to accept some of the newer FTN4 statements (such as PRINT\*, <List>) it was necessary to make some changes in the MNF language. Some of these changes may cause some programs that are accepted by the current versions of MNF to fail when run under Version 5.1.

The following features (or statements) which used to work on previous versions of MNF, will not be accepted by Version 5.1. If these features are used under 5.1, fatal error messages will be printed in the source listing, and the offending statements must be changed as suggested below --

- (1) String constants delimited by asterisks are not accepted by Version 5.1 (but asterisk fields in FORMAT statements are still accepted). For example, change

```
DATA I/*STRING*/  
to  
DATA I/'STRING'
```

(Note that the quote prints as a not equal sign on some printers.)

- (2) The CDC style DATA statements with parentheses used instead of slashes are no longer accepted. For example, change

```
DATA (I=5)  
to  
DATA I/5/
```

- (3) The old style IF(EOF,n) and IF(UNIT,n) tests are no longer accepted. For example, change

```
IF(EOF,5)1,2  
to  
IF(EOF(5).NE.0) GO TO 1  
GO TO 2  
and  
IF(UNIT,7) 1,2,3,4  
to  
IF(UNIT(7)) 2,3,4
```

- (4) The ECS (or TYPE ECS) statement is not accepted - use the LEVEL 3 statement instead (the LEVEL statement is described in the FTN Version 4 Reference Manual).

- (5) FOR statements are not accepted, and should be changed to use DO loops or IF loops. For example, change

```
FOR I=N,1  
to  
DO 2 J=1,N  
I=N+1-J
```

- (6) The UNLOAD statement is not allowed, and should be removed.

- (7) The control card MNF(I) now means (MNF(I=COMPILE), and not MNF(I=INPUT).

- (8) The default error message level is now MNF(E=2) - this means that NOTES and COMMENTS will not be printed unless MNF(E=0) or MNF(E=1) is used. The lowest level (E=0) messages are now NOTES, rather than COMMENTS.

- (9) Pre-compiled (binary) subprograms compiled under the previous MNF may fail if called by Version 5.1. Such subprograms should be re-compiled using 5.1. (No change is required for absolute OVERLAYS, of course).

- (10) Many compile time error messages have been changed. This was done to enable all messages to fit on a 70 character wide terminal when MNF(K) is used, but invalidates Appendix G of the MNF Reference Manual.

In addition, the new versions of MNF require that binary tapes or permanent files created by old versions of MNF must be converted as described in WRITEUP(NEWMNF) in order to be read. Note that

these new forms of binary and random files are completely compatible with the FTN4 forms, thus allowing interchange of information.

Whilst MNF Version 5.1 accepts nearly all FTN Version 4 programs, there are still some FTN features which are not accepted by MNF --

- (1) The special FTN CALLS and RETURNS statements allowing variable subroutine return addresses.
- (2) The '/record length'; which may be declared for a file in the PROGRAM statement. MNF will accept the statement (with an error message), but will ignore the record length declared. Thus, the program may fail under MNF if the record length declared was more than 150 characters.
- (3) The special CDC DATA statement, for example  
DATA (I=5)  
-using parentheses rather than slashes - will fail under MNF. The modern form works on both compilers.
- (4) The two branch arithmetic IF statement - IF(arithmetic expression) 1,2. This form is very bad Fortran, and should be avoided. The most common usage of the two branch arithmetic IF is with the EOF function.
- (5) MNF ignores the imaginary parts of COMPLEX values when they are compared by means of the .EQ. or .NE. operators - FTN compares both parts.
- (6) FTN allows exponents to be of type COMPLEX, MNF does not.
- (7) FTN generates unrounded arithmetic machine instructions, but can generate rounded instructions if the 'ROUND' option is used on the FTN control card. MNF generates only rounded instructions. Rounded arithmetic can be shown to be more accurate than unrounded, but the difference will only be apparent when an unsound algorithm is used.
- (8) FTN allows several very non-standard forms for formatted input and output statements, PRINT(6,10) K for example. MNF does not allow them (and there is no point in using them - the standard forms are quite adequate).

The record manager used by MNF Version 5.1 differs from that used by FTN. MNF uses a small record manager (MSUIO) which was written at Michigan State University. MSUIO saves over 4000B words of execution storage for the average Fortran job, but will only cope with ordinary Fortran (FTN) block and record types. Note that MSUIO will not cope with exotic file types, such as Indexed Sequential, nor can it handle direct calls to Record Manager routines, such as CALL FILE(...). Only the following file types are recognized

FO BT RT Used By

SQ C Z formatted (coded) READ/WRITE  
SQ I W unformatted (binary) READ/WRITE  
SQ C S BUFFERIN/BUFFEROUT  
WA n/a U CALL READMS/WRTMS

Use of illegal file types under MSUIO will cause loader errors and failure of execution.

A good description of MNF Version 5.1 is available using the control card WRITEUP(MNF). This WRITEUP also describes some desirable new features, such as the IF=THEN=ELSE, and WHILE statements that have been added. This writeup consists of 32 pages, each of 66 lines, and has a maximum line width of 92 characters. A second document, of 6 pages - WRITEUP(NEWMNF) - describes the things that may have to be changed when converting programs to use MNF Version 5.1.

When using the timesharing version of MNF (FUTURE,TSF), remember that the OLD, NEW, and LIB commands drop local files, so the command X,FUTURE,TSF should be used after the program file has been accessed or a no drop (ND) parameter should be added to the OLD, NEW, or LIB command. For example:

```
X,FUTURE,TSF  
OLD,PROGRAM/ND  
RUN
```

or

```
OLD,PROGRAM  
X,FUTURE,TSF  
RUN
```

The following sequence of statements will use the current version of the timesharing compiler since the FUTURE one will be dropped when the primary file is accessed:

```
X,FUTURE,TSF  
OLD,PROGRAM  
RUN
```

C. F. Schofield, 373-5239

## Interpreter

Have you tried the Zeta 030?

Several users have suggested a faster card interpreter than the IBM 026-21 interpreter that is currently used. In response to these suggestions we have had a Zeta 030 interpreter installed in Experimental Engineering 130 for testing.

This machine, in place since the middle of June, interprets a little over four times faster (50 cards per minute) than does the IBM 026-21. It interprets directly over the punched column and has the 63-character modified 026 character set of the IBM 029 (i.e., the character set compatible with our current keypunches). Many other devices that we considered did not have these two key features.

We have received many satisfied comments and now plan to purchase the machine.

The one problem still remaining (after the initial teething problems) has been the quick depletion of ink from the ribbon because of its faster throughput. We are testing some different ribbons and inks that we hope will correct this problem.

L. Liddiard, 373-5239  
R. Fleagle, 376-5263



#### A COMPUTER TERMINAL FOR THE BLIND

This past year Kevin Fjelsted, a UCC staff member, has been working on the development of a special computer terminal that would permit a blind person to interact with the computer in an easier way. The result of this work is a computer terminal which interfaces with an optical-to-tactile converter (OPTACON). An OPTACON, developed by Telesensory Systems Inc. of Palo Alto, California, is a device which allows a blind person to read regular printed material. This is accomplished by employing a small camera similar in principle to a TV camera. This camera is moved across the line to be read. As the camera is moved across the line, it scans the letters that it passes over. These letters are then transferred to a tactile array of rods that are felt with the finger. The image that is placed on the rods is an exact copy of the shape of the printed letter that was scanned.

Last fall, Kevin proposed that a terminal be built which would interface his OPTACON directly to the data available from a communications line. This would mean that he would not have to use the camera of the OPTACON to read the printed data from a terminal. Instead, the letters would appear directly on the OPTACON's display. The Executive Committee of the University Computer Center approved the development of the terminal and Dr. Abe Franck was placed in charge of the project. Kevin received many good ideas as well as much support from Dr. Franck for this terminal.

During the past six months, development of an OPTACON interface terminal has been completed. Dan Laliberte, an employee of UCC, played a very important part in this development. Tom Jacobson, a former employee of UCC, also contributed many hardware ideas as well as devoting time to the construction of the terminal. The result of this effort is that Kevin now has a terminal that allows him to interact with the computer in a much faster and better way than previously.

During the month of April, Kevin gave a talk and demonstration of the OPTACON interface terminal at the CDC VIM conference held in the Radisson Hotel in Minneapolis. A representative of Lawrence Berkeley Labs of Berkeley, California was present at this meeting and was able to take back knowledge of this terminal to the people at LBL.

LBL has since expressed a great deal of interest in the OPTACON interface terminal. As a result, Kevin is now consulting with LBL, and jointly investigating improvements and more sophisticated terminals.

R. Hotchkiss, 373-5756  
K. Fjellested, 373-5780

## STAT PKGS

### POLICY FOR USERS OF STATISTICAL PACKAGES

In the past years, we have helped users set up their jobs to use the statistical packages. Quite frequently, this help extended to the statistical analysis itself, what programs should be used, and how to interpret the results. Over the years this has led to an extensive commitment of UCC staff and time. We do not extend this level of help in other areas. In fact, our policy has long been that users develop basic computer knowledge and do their own programming and running of jobs. We help with our training short courses and with consulting when problems arise. We have come to realize that we must limit our aid to statistical package users; that it is not our mission to provide ground level aid.

On the other hand, the Applied Statistics Department of the University does indeed have the mission of counseling users from "the ground up". To do this, they have set up both a Statistics Center (see item 9, below) and a Statistics Clinic. In the Clinic they offer consulting in both statistics and the use of statistical packages. If you need assistance in statistics, analysis, or conceptualization, visit the Clinic or call 376-3845.

### SuggeStions for use of UCC facilities:

1. PURCHASE the BMD, BMDP, or SPSS manuals, or the SPSS Primer. The Primer is easier to start out with and more compact to carry around. These are available at the University's bookstores.
2. ATTEND the UCC free short courses in the use of the computer and the use of statistical packages. The course schedule is available at the UCC Reference Room in the Experimental Engineering Building or you may call 373-7744.
3. WRITE your program following the examples shown and described.
4. KEYPUNCH your program, following the instructions you can learn by viewing the videotape on keypunching which is available in all of the Learning Centers (Walter Library, Diehl Hall, Coffey Hall, and at all coordinate campuses).
5. RUN your program.
6. DEBUG your program, using your Primer or Manual. Do not be surprised if your program does not run the first time. It happens to all of us.
7. SEE A CONSULTANT if you encounter an error condition you cannot understand. Be sure to take to the consultant your output listing, your copy of the Primer or Manual, and your data. If your data is contained in a large deck of cards, you

may wish to bring a listing of the data instead of the cards. Consultants are available in 140 Experimental Engineering on the East Bank, at SSRFC in 25 Blegen Hall on the West Bank, and in 125C Classroom Office Building in St. Paul.

8. For further information about using the UCC computers or about UCC documentation and courses, see the staff in the UCC Reference Room. If you have questions that you can find answers to nowhere else, call the HELPLINE, 376-5592.
9. Contract consulting (for a fee) is available by contacting Jim Johnson, 376-1764 on the East Bank or Dr. Frank Martin, 373-1043 in St. Paul.  
T. Hodge, 373-4599  
P. Bland, 373-5456

## brief notes

### ➔ XEDIT

-- FUTURE(XEDIT) will be made current during the quarter break (after Summer Session II). This change will be made on August 25. ----- Please see WRITEUP(XEDIT=FUTURE) or the June newsletter for a description of this new version (version 3.0.0).

### ➔ ARCHIVED FILES

-- Monthly listings of archived permanent files for the past year are available on an indexed writeup called AFLISTS. Execution of the control statement  
WRITEUP,AFLISTS=INDEX  
produces instructions for using thIS writeup. Some general information about permanent file archiving is also contained on the index record.

### ➔ Another reminder to RUN users

-- A while ago we ended support of RUN and its related routines because of our limited manpower and because CDC had ended its support. Also, we found that the code generated by RUN is slower than the code for MNF or FTN. Since RUN is slower and is taking valuable disk space, we have decided to drop it from the operating system. We plan to do this on September 13, 1977. You still have plenty of time to convert any RUN programs you have to MNF or FTN.

We will be removing the RUN library routines; this means that relocatable binary decks from RUN will not be usable. While absolute overlays could be made from the relocatable binary, we do not recommend this. Start conversion now so that any problems that arise can be taken care of before it is too late.

III

WHY ARE NEARLY ALL UCC STAFF USERS OF MIRJE VALIDATED FOR BOTH TIMESHARING AND BATCH USAGE WHILE NEARLY ALL OTHERS MUST HAVE SEPARATE USER NUMBERS? SINCE ALL UCC STAFFERS, FROM THE GREENEST UNDERGRADUATE ASSISTANT TO THE MOST SENIOR, HAVE FREE USE OF COMPUTER RESOURCES, IT IS NOT FAIR THAT WE PAYING CUSTOMERS CANNOT HAVE THE SAME ACCESS PRIVILEGES. I CHALLENGE YOU TO PRINT THIS, TO HOPEFULLY BROACH THE QUESTION OF "WHO USES THE UNIVERSITY'S COMPUTER RESOURCES MOST? UCC OR NON-UCC USERS?"

A.S.:17JUN77

Thank you for your challenge. You knew we would respond. The separate user numbers for Batch and MIRJE usage rest on three considerations.

First, when timesharing access was authorized for the Cyber 74, the University Computer Advisory Committee mandated that

- a. MIRJE use must not interfere with Batch use (in order to solve this, 32K of additional Central Memory plus 6638 disk and 6676 dataset controllers were purchased for \$310,000).
- b. Separate accounting totals be kept for MIRJE and Batch utilization by each user.
- c. User MIRJE accounts could not be subsidized more than 50%, whereas Batch accounts could be.

In order to comply with these last two requirements, separate MIRJE and Batch numbers were chosen.

Second, CDC's version of VALIDUS only had space for one value for maximum field length for each user number (currently 155K for Batch or 55K for MIRJE). Yes, we could have overcome this restriction by modifying the system and introducing MIRJE at a later date, but that would have upset the statewide expansion of MERITSS for MECC use in the fall of 1974. The separate maximum field length restriction emphasizes the fact that timesharing on CDC machines only works well for large numbers of users if each user is heavily restricted in total field length. All of the studies that we have done on timesharing response show that large field length MIRJE users (50-70K) require exponentially more resources if they are to have the same response time as the 10-30K users.

Third, our Batch users do not now have absolute security of their user password if they run where decks are placed in trays or output bins. At the University, theft of computer time is perpetrated ten times more often by timesharing users than by a Batch-type user. In order to protect Batch accounts from depletion by timesharing user thefts that would have occurred if the same password was used for MIRJE and Batch, a separate user number for MIRJE seems a reasonable solution.

With respect to the question "who uses the University's computer resources most?", I would like to expand that into SYSTEM, UCC, Non-UCC groups, since we purchased a machine that, unlike certain others which require 50% of the CPU power

to be delivered to system overhead, requires less than 10% at peak usage:

Percentage of Use of Cyber 74 Resources

	CP	transfers MS	mass MT	storage
System	TELEX   9.4	MIRJE 0		6.3
	SUPIO	Batch		
	MAGNET	rolls		
	CPMTR	(6638)		
UCC	Accounting   21.1	22.2	26.9	11.7
	Development	(844)		
	Maintenance			
	Diagnosis			
Non-UCC	69.5	77.8	73.2	81.5
		(844)		

In addition to delivering approximately three quarters of the Cyber 74 resources to users, we have developed compilers, functions, and editors (MNF and XEDIT) that have allowed you to reduce cost and resource usage by 30 to 50 percent for identical programs. Unlike other institutions, we have never taken prime time hours for our exclusive use, instead we use 4-7:30 AM and weekend off-hours for system time, and midnight to 4 AM for end of month accounting. We do not give priority to our staff over normal users; in fact, we ask our staff people not to run large resource usage jobs during the 9 AM to 6 PM prime time hours.

L. Liddiard

IS THERE ANY EASY WAY OF CONVERTING PROGRAMS PUNCHED FOR AN IBM MACHINE TO THE 026 CODE USED HERE? I NOW CAN RUN FROM EXPERIMENTAL ENGINEERING BUT IT IS MUCH MORE CONVENIENT AND FASTER FOR ME TO USE A 1004.

S.U.:28JUN77

The 1004 does a hardware code conversion and is therefore not capable of two different methods of conversion (026 and 029). Sorry, but there is no choice but to use 029 decks at one of the high speed stations. It may be worth your while to read the deck in at one of the high speed stations and then punch out a new (026 version, 1004 compatible) deck of cards for use.

R. Franta

I OFTEN SUBMIT MATERIAL AT ELLIOTT WHICH IS THEN DIVERTED TO EXPERIMENTAL ENGINEERING. IT IS A 15 MINUTE WALK FROM EDDY HALL TO ELLIOTT AND I DO NOT LIKE THE REPEATED TRIPS TO CHECK FOR OUTPUT. COULD YOU INCLUDE SITE 4W (ELLIOTT) BIN JOBS ON THE RECORDED MESSAGE SO THAT I CAN CALL BEFORE I COME OVER?

A.T.:13JUL77

Most of such output has no bin number to identify it so we could not use the recorded message. For this reason, your suggestion cannot be implemented. We are trying to cut down the number of diverted jobs and the delay in printing.

R. Franta

IF YOU ARE GOING TO STOP ACCEPTING JOBS AT 2330 or 2345, SAY SO! DON'T POST A NOTICE AND THEN SHUT DOWN EARLY!

J.A.:07JUL77

I can understand the confusion. We will work on clarifying our notices in future.

J. Sell

HAS MNF GONE METRIC? THE WRITEUPS, MNF AND NEWMNF, ARE HELPFUL AND COMMENDABLE DOCUMENTS BUT THEY ARE MARRED BY THEIR UNUSUAL WIDTH. THEIR TEXT IS EXACTLY 8 1/2 INCHES WIDE AND ADMITS NO TOLERANCE FOR MARGINS TO PUNCH AND BIND.

A.S.:07JUL77

The text of WRITEUP(NEWMNF) has been reduced to a maximum line width of 70 characters (7 inches) and consists of 6 pages.

The text of WRITEUP(MNF) is unchanged at a maximum 92 characters, and consists of 32 pages. This latter writeup is, in my view, too long to be printed at an interactive device, but would be suitable for output to a line printer. Good quality printed copies of WRITEUP(MNF) may also be obtained from me, at no charge. These are printed at 12 characters per inch, thus giving a maximum text width of 7.67 inches. This leaves a smallest margin of 0.33 inches on an ordinary page. In fact, the margin is larger than 0.33 inches because the 92 character width includes leading blank characters.

C. Schofield

WHY DOESN'T GET(OPL=MYPL/UN=XXX1234) WORK WHEN I AM CURRENTLY RUNNING ON USER NUMBER XXX1234 AND MYPL IS A PRIVATE FILE? THE SYSTEM SAYS "MYPL NOT FOUND" AS DOES REPLACE.

D.W.DEH.:17JUN77

You have rediscovered a minor design flaw in the system permanent file utilities. Whenever a user number is specified on a permanent file access request, the permanent file utilities check the permit data associated with the permanent file even though you specified your own user number. Had you permitted (using the PERMIT command) the permanent file to yourself the access request would have been honored.

T. Lanzatella

I WOULD LIKE TO COMMENT ON THE EXCELLENT SERVICE SUNDAY PM/MONDAY AM. MY TAPES (ELEVEN 9-TRACK) WERE MOUNTED VERY QUICKLY WHICH LEAD TO A VERY SHORT TURNAROUND TIME. FURTHER OUTPUT DISPOSED TO "BC" WAS PUT IN THE LAUDERDALE BINS QUITE FAST (ABOUT EVERY 15 MINUTES). LET THE OPERATORS KNOW THEY DID A FINE JOB.

H.K.:20JUL77

Thank you.

A RECENT VISIT TO LAUDERDALE SHOWED ME THAT THE HEATHKIT CLOCK MOUNTED ON THE SYSTEM CONSOLE WAS 10 SECONDS FAST ACCORDING TO MY DIGITAL WATCH WHICH I HAD SET THAT SAME MORNING. I SET MY WATCH TO WWV, FORT COLLINS (SHORT WAVE). CAN'T YOU BE MORE ACCURATE?

A.H.:14JUL77

Thank you very much for your observation. We always appreciate a sincere interest in our operations.

R. Folden

-----  
New programs

Two finite element computer programs have been recently obtained by Professor Robert J. Gustafson of the Department of Agricultural Engineering. These programs are:

DOT

A nonlinear Determination Of Temperatures program for analysis of two dimensional planar or axisymmetric structures (Version I, February 1976).

DETECT

Determination of Temperatures in Construction. A two dimensional heat transfer program for structures of arbitrary geometry constructed incrementally. Version I, February 1976.

Both programs were developed by R. M. Polivka and E.L. Wilson, University of California, Berkeley.

Professor Gustafson is willing to share these programs with others at the University. If you are interested, please call him at 373-1359.

████████████████████  
PARKING LOT PROBLEMS:

Some users have complained about the condition of the roads and parking lot at Lauderdale. Plant Services has now repaired the driveway portions at the Lauderdale site and we are pleased that those holes are now gone.

Nothing was done to the parking lot. However, improvements are under consideration but this may imply that some remuneration from users to Parking Services may be necessary if these repairs are done.

PRODUCTION USAGE SUMMARIES

	<u>June, 1977</u>	<u>June, 1976</u>
<b>CDC Cyber 74</b>		
Number of Batch jobs and MIRJE sessions	31,285 ( 93,671)	70,164 ( 78,562)
Central processor hours	181 ( 222)	151 ( 201)
MIRJE terminal hours	6,355 ( 7,994)	-
Mass storage transfers (KPR)	191,216 ( 249,728)	153,980 ( 213,514)
Magnetic tape transfers (KPR)	6,752 ( 8,590)	4,110 ( 6,137)
Pages printed	833,337 ( 954,288)	800,370 ( 907,724)
Cards punched	444,864 ( 483,914)	455,619 ( 496,286)
Microfilm frames produced	39,145 ( 277,292)	5,787 ( 252,106)
Tapes mounted	9,498	3,732
Average file storage (1547M available)	1,138.8 million char	658.4 million char
Mean time between failures	40.0 hours	10.3 hours
Percentage available during scheduled hours	99.3 percent	97.0 percent
SUPIO availability during scheduled hours	97.5 percent	-
(totals in parentheses include staff development, accounting, and maintenance runs)		
<b>CDC 6400</b>		
Number of jobs run	143,352	101,967
Central processor hours	142	93
MERITSS terminal hours	18,655	12,667
Number of terminal sessions	35,466	24,865
Maximum number of simultaneous users	99	75
Average file storage	264.0 million char	178.6 million char
Mean time between failures	94.7 hours	79.1 hours
Percentage available during scheduled hours	99.5 percent	99.6 percent

CYBER 74 DOWNTIME SUMMARY : July, 1977

	<u>Monday-Friday 0800-1800</u>	<u>other</u>	<u>total</u>
Total possible scheduled uptime hours	200.	303.	503.
Total downtime hours (see Schedule A)	2.7	6.4	9.1
Total uptime hours	197.3	301.6	498.9
Uptime percentage	98.7 percent	97.9 percent	98.2 percent
Average downtime per occurrence	17.9 minutes	31.8 minutes	25.9 minutes
Mean time between failures	24.7 hours	27.4 hours	26.3 hours
<b>Subsystem failures</b>			
SUPIO	18	22	40
TELEX	5	0	5
EXPORT	5	1	6

**Schedule A: downtime hours**

	<u>Number</u>	<u>Total hours</u>	<u>Average minutes</u>
(1) Preventive maintenance over-runs	0	0.0	0.0
(2) Software related problems	0	0.0	0.0
(3) Hardware related problems	8	3.7	27.4
(4) Indeterminate software/hardware problems	9	1.8	12.0
(5) External Problems	4	3.6	54.0

SUBMISSION SITE USAGE SUMMARY: TELEX EXCLUDED : July, 1977

submitted from	total jobs	%	pages printed	%	cards read	%
Lauderdale	3,330	6.3	332,827	32.2	1,594,563	15.9
ExpEng	6,028	11.5	207,383	20.1	2,234,436	22.8
West Bank	5,225	9.9	94,717	9.2	1,030,382	10.8
6400	1,234	2.3				
SUPIO	36,777	69.9	393,589	38.6	5,079,899	50.6
TOTALS	52,594		1,033,516		10,039,230	



MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
13 June	14 June	15 June	16 June Introduction to UCC	17 June
20 June Pascal Intro to S2000	21 June KRONOS Control Cards PLOT PAC	22 June Pascal Intro to S2000 PLOT PAC	23 June KRONOS Control Cards PLOT PAC	24 June Pascal Intro to S2000
27 June Pascal Intro to S2000	28 June KRONOS Control Cards System 2000 Conversion	29 June Pascal Intro to S2000	30 June KRONOS Control Cards	1 July Pascal Intro to S2000
4 July Pascal	5 July KRONOS Control Cards	6 July Pascal	7 July KRONOS Control Cards System 2000 Conversion	8 July Pascal
11 July System 2000/PLI	12 July KRONOS Control Cards	13 July System 2000/PLI	14 July KRONOS Control Cards	15 July System 2000/PLI
18 July	19 July	20 July	21 July Introduction to UCC	22 July
25 July System 2000/RW Beginning COMPASS	26 July Intro to Timesharing	27 July System 2000/RW Beginning COMPASS	28 July Intro to Timesharing	29 July System 2000/RW Beginning COMPASS
1 August Beginning COMPASS SPSS (Very beginning) COBOL	2 August SPSS (Beginning)	3 August Beginning COMPASS SPSS (Intermediate) COBOL	4 August SPSS (Intermediate)	5 August Beginning COMPASS SPSS ON/LINE COBOL
8 August COBOL *	9 August Intermediate FORTRAN	10 August COBOL *	11 August Intermediate FORTRAN	12 August COBOL *
15 August COBOL *	16 August Intermediate FORTRAN	17 August COBOL *	18 August Intermediate FORTRAN	19 August COBOL *
22 August *	23 August Intermediate FORTRAN	24 August *	25 August Intermediate FORTRAN	26 August *
29 August	30 August Intermediate FORTRAN	31 August	1 September Intermediate FORTRAN	

Introduction to UCC : th, 2:15-4pm, 16 June, Mech E 221  
 Pascal : mwf, 1:15-3pm, 20 June - 8 July, Lind H 54  
 System 2000 Conversion: t, 2:15-4pm, 28 June, Space Sci. 113  
 Intro. to System 2000 : mwf, 2:15-4pm, 20 June - 1 July, Chem E 40  
 Kronos Control Cards : tth, 2:15-4pm, 21 June - 14 July, Chem E 54  
 PLOT PAC : twth, 7:00-9pm, 21-23 June, Lauderdale Conf Rm  
 System 2000 Conversion: th, 2:15-4pm, 7 July, Space Sci. 113  
 System 2000/PLI : mwf, 2:15-4pm, 11-15 July, Lind H 4  
 Introduction to UCC : th, 6:00-8pm, 21 July, Mech E 221  
 System 2000/RW : mwf, 2:15-4pm, 25-29 July, Chem E 158  
 Beginning COMPASS : mwf, 2:15-4pm, 25 July - 5 August, Lind H 54  
 Intro. to Timesharing : tth, 2:15-4pm, 26-28 July, Chem E 40  
 SPSS (very beginning) : m, 2:15-3:30pm, 1 August, Mech E 221  
 SPSS (beginning) : t, 2:15-3:30pm, 2 August, Mech E 221  
 SPSS (intermediate) : wth, 2:15-3:30pm, 3-4 August, Mech E 221  
 SPSS ON-LINE : f, 2:15-3:30pm, 5 August, Mech E 221  
 COBOL : mwf, 2:15-4pm, 1-19 August, Lind H 4  
 Intermediate FORTRAN : tth, 2:15-4pm, 9 August - 1 September, Chem E 54

## NEW SHORT COURSE

\*  
 KRONOS CONTROL CARDS:  
 August 8-26 (MWF)  
 2:15 - 4:00 PM  
 B36 Classroom Office Building  
 St. Paul Campus

WRITEUP DOCUMENTS

26JAN77 ABCLIST Extended CATLIST utility.  
 22JUN77 ACCRATE Cyber 74 accountin rates.  
 28JUL77 AFLISTS Archived PF lists (indexed).  
 26JAN77 AMEND Unit record manager.  
 26JAN77 APLUM APL interpreter.  
 28FEB77 ARCHIVE PF dump/load utility.  
 26JAN77 BKP Breakpoint CP program.  
 26JAN77 BLANK Write initial label.  
 26JAN77 BLOCKER Write blocked stranger tapes.  
 10JUN77 CALLPFM FORTRAN permanent file routines.  
 22JUL77 CALLPRG Library search extension.  
 26JAN77 CATALOG Catalog a file.  
 26JAN77 CATLIST Catalog a permanent file.  
 26JAN77 CATLSYS Extended CATLIST utility (indexed)  
 26JAN77 CHANGER Extended CHANGE utility.  
 26JAN77 CIMSPL1 CIMS PL/1 user guide.  
 26JAN77 CKSPSS SPSS utility program.  
 10JUN77 CODING KRONOS coding conventions.  
 08MAR77 CONTROL Descriptions of control cards (indexed).  
 26JAN77 COPYL Cyber common utility; LIBEDIT.  
 26JAN77 COPYU Copy unit records.  
 22FEB77 COST Calculate job cost.  
 01FEB77 COUNTU Count unit records.  
 09JUN77 DEBUG CPU error exit description.  
 26JAN77 DELAY DELAY queue feature.  
 26JAN77 DISPOSE DISPOSE control card.  
 26JAN77 DIVERT Re-route large output files.  
 26JAN77 DMPCOR CM dump routine.  
 26JAN77 DMPCECS Dump ECS.  
 26JAN77 DRESS Prepare source file for MODIFY and UPDATE.  
 26JAN77 DUMPPF Permanent file dump and load utility.  
 26JAN77 EISPACK Descriptions of EISPACK programs (indexed).  
 26JAN77 ERRMESS Dayfile error messages.  
 01JUN77 EXAMIVE Determine magnetic tape contents.  
 26JAN77 FILES Manipulate local files.  
 26JAN77 FMT Text formatting program.  
 22FEB77 FOCAL FORTRAN calculator.  
 26JAN77 FORSUBS Description of FORTRAN sub-programs (indexed).  
 26JAN77 FUNPACK Description of FUNPACK programs (indexed).  
 26JAN77 GETSAVE PF utility.  
 26JAN77 HASH Change user index to job name and vice-versa.  
 26JAN77 ISIS Interactive statistics system.  
 26JAN77 ITEMIZE Cyber common utility; CATALOG.  
 26JAN77 KCL Control card processor.  
 26JAN77 LIBEDIT Library editing program.  
 26JAN77 LIBLIST Short descriptions of library files.  
 26JAN77 LIBRARY Description of library files (indexed).  
 01FEB77 LISP LISP information.  
 26JAN77 LPKODE LP/IP/MIP package.  
 23APR77 MF501 Translate file for EBR.  
 23APR77 MNF Short guide to FETCH MNF.  
 26JAN77 MODIFY Source library editing program.  
 26JAN77 MODUP MODIFY to UPDATE conversion program.  
 04FEB77 MP Microplanner language.  
 25JUN77 NEWMNF MNF conversion guide.  
 26JAN77 PACKMS Pack random file.  
 27MAR77 PASCAL PASCAL information file (indexed)  
 27MAR77 PASCLIB PASCAL library information.  
 01FEB77 PFCOST Estimate PF costs.  
 26JAN77 PFGUIDE Permanent files user's guide.  
 26JAN77 PFILES Permanent files request processor.

26JAN77 POLISH Edit ANSI FORTRAN modules.  
 27JAN77 PROCPAC Reference for calling system routines.  
 19MAR77 PSEUDO COMPASS pseudo-instructions.  
 26JAN77 PURGER Extended PURGE utility.  
 06JUN77 PUTUP How to put up a writeup.  
 26JAN77 REBLOCK Converts "S" AND "L" tapes to internal.  
 20JUL77 REENTRY Alter program entry point.  
 26JAN77 REFORM Sequence/desequence T/S source lines.  
 20JUN77 RIGHTUP How to use WRITEUP.  
 26JAN77 RJECON Remote job entry commands.  
 10FEB77 RJE1976 SUPIO statistics for 1976.  
 01JUL77 SADIE Image processing user library.  
 26JAN77 SEND Send files to the 6400.  
 06JUN77 SETVAL Set certain validation limits.  
 26JAN77 SNOINFO CAL 6000 SNOBOL.  
 26JAN77 SNPSHOT Write/restore registers and dump.  
 23FEB77 SORTOPL MODIFY sorter.  
 04MAY77 SPICE Semiconductor program.  
 26JAN77 SQUEEZ Squeeze COMPASS listings.  
 26JAN77 STRATEN Straighten COMPASS source lines.  
 09MAR77 SUBMIT Submit job to input queue.  
 25MAY77 SYSLIB SYSLIB documentation.  
 22FEB77 TAPES Tape library manager.  
 22FEB77 TAPEUSE Tape user's guide.  
 26JAN77 TDUMP Dump a file.  
 26JAN77 TEKLIB Library for TEKTRONIX terminals.  
 26JAN77 TESTCR Card reader testing routine.  
 26JAN77 TESTLP Printer and line test program.  
 26JAN77 TIDY Tidy FORTRAN source lines.  
 15MAR77 TYPENEW TYPESET changes.  
 15MAR77 TYPESET Text reformatting program.  
 15JUL77 UNPAGE Edit carriage control characters.  
 06JUL77 UPWRITE Writeup index editor.  
 26JAN77 XEDIT Extended interactive text editor.  
 14MAY77 XMIT XMIT/SEND writeup.  
 26JAN77 1004INT 1004 operating instructions.  
 26JAN77 1004SET 1004 character set conversion.

WRITEUP FILES WITH ROUTINELY CHANGING INFORMATION  
 AFmmyy Lists of archived files; mmm=month, yy=year.  
 CONSULT Consulting sites and hours.  
 DOCLIST List of documentation and publications sources.  
 HOURS Operating hours.  
 NOTE T/S system notes.  
 PREVIEW Preview display dump.  
 PTRFORT List of FORTRAN bugs.  
 PTRKR List of operating system bugs.  
 PTRMISC List of miscellaneous software bugs.  
 PTRSTAT List of statistics packages bugs.  
 PTRSZK List of System 2000 bugs.  
 RJDSTAT Daily SUPIO statistics.  
 RJEMTOT Monthly SUPIO statistics.  
 RJMSTAT Cumulative SUPIO statistics.  
 SITEBIN Output shelf locations.  
 SYSMODS Latest system changes.  
 TSTATS Tape mounting statistics.

NEW PRINTED PUBLICATIONS  
 BANISOL: MINN subprogram writeup.



The Cyber 74: A Statistical Review For Fiscal Year 1976-1977

	<u>1976-77</u>	<u>1975-76</u>	<u>percentage change</u>
Number of batch jobs and MIRJE sessions	892,595 (1,033,199)	795,879 ( 910,786)	+ 12.2 (+13.4)
Central processor hours	1,775 ( 2,313)	1,494 ( 1,939)	+ 18.8 (+19.3)
Mass storage transfers (KPR)	2,171,060 (2,790,257)	1,592,845 (2,153,343)	+ 35.3 (+29.6)
Magnetic tape transfers (KPR)	64,310 ( 88,023)	54,708 ( 82,456)	+ 17.6 (+ 6.8)
Pages printed	8,862,693 (1,139,220)	8,738,605 (1,237,113)	+ .8 (= .9)
Cards punched	5,099,521 (5,520,087)	5,501,965 (6,047,436)	- 7.3 (= 8.7)
Microfilm frames produced	307,887 (2,973,682)	387,677 (2,601,285)	- 20.6 (+14.5)
Tapes mounted	102,237	93,526	+ 9.3
Average file storage (characters)	396.6 million	537.6 million	+ 52.6
Mean time between failures	30.2 hours	13.0 hours	+232.3
Percentage available during scheduled hours	98.6 percent	96.3 percent	+ 2.4

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

We are pleased to report that this was a good year with increased jobs, central processing hours, mass storage transfers and total file storage being handled well by the Cyber 74. We also want to publicly acknowledge the CDC customer engineers, the UCC engineering service, operations, and systems people who have spent long hours and effort to achieve a stable system. We are convinced that the combined effort of these people is the reason for the better percentage of time that the Cyber 74 was available for users this year and the increased mean time to failure.

The statistics also reveal that our users and staff have become more ecologically concerned in that both printer paper and card punch usage have stayed level or decreased under heavier job and CP load.

Note that we are the heaviest user of microfilm in trying to keep accounting statistics and dayfile messages without requiring hundreds of trees and larger rooms to hold that information. If any user notes that computer listings are taking up much of the office space, may we suggest looking into the use of the microfilm printer for some of that output.

In other statistics not shown in the monthly summary, we have seen a doubling in Statos plotting (the new Statos delivered this summer should correct the hardware problems that have plagued the current device). Twenty five percent increases were seen in SUP10 medium speed connect time and in MIRJE connect hours.

L. Liddiard, 373-5239

RETURN TO:

UNIVERSITY COMPUTER CENTER  
 227 EXPERIMENTAL ENGINEERING  
 UNIVERSITY OF MINNESOTA  
 208 UNION STREET SE  
 MINNEAPOLIS, MINNESOTA 55455