

UNIVERSITY COMPUTER CENTER

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NOTES
&
COMMENTS

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UNIVERSITY OF MINNESOTA
MINNEAPOLIS, MINNESOTA

A SHORT HISTORY OF THE UNIVERSITY COMPUTER CENTER

The Numerical Analysis Center, which later became the University Computer Center, was established in 1958 under the directorship of Dr. Marvin L. Stein. At this time the University had purchased a Univac Scientific (ERA 1103) computer. Previous to the purchase of the ERA 1103 and the establishment of the Center, the computing facilities of the University had consisted of a Reeves Model 100 analog computer, leased IBM tabulating equipment, and several grants of ERA 1103 time from the Remington-Rand Corporation.

The Center, under the able direction of Dr. Stein and with a small staff of Research Assistants provided consultation on the use of computers and did research in the applications of large-scale computers. The general philosophy under which the Center was operated (and continues to operate) was that computer facilities should be made as easy to use and as openly available as possible to all staff members and students with computing needs. Under this philosophy it was felt that the University should offer support to those persons who could not contribute financially to the operation of the Center. At present this support consists of a subsidy fund to purchase time for students and those staff members without support from research contracts or grants.

The ERA 1103 was extensively used as a research tool. In fact, it was soon saturated and a large backlog of work resulted from this saturation. To accommodate this ever increasing demand for computer access, a proposal for modernization of the computer center was made to the National Science Foundation and, with this NSF grant and matching Minnesota funds, a CDC 1604 system was acquired in 1962.

With the advent of the CDC 1604, computer use throughout the University increased rapidly. While major use still came from the physical sciences, the increased ease in programming made possible by the problem-oriented languages permitted use by almost all departments.

The demand for CDC 1604 time increased rapidly. In 1965, 3 years after its purchase, it too became saturated and a temporary arrangement was made to accommodate the overflow through a CDC Service Center. This temporary expedient slowed turnaround time and rendered some large projects unfeasible and generally handicapped all computer users. In addition, many problems were being presented for which the CDC 1604 was inadequate.

To alleviate these existing problems and to provide for future computing requirements of the expanding University, a CDC 6600 computer was purchased in 1966, again with the aid of matching NSF and Minnesota grants. The CDC 6600 was installed at the Lauderdale site in February, 1967 where it is now in successful operation.

A most important part of a computer center is, of course, its staff. The University Computer Center has been fortunate in having as a director a man who was as interested in teaching as he was in running an efficient service center. Dr. Stein, at a luncheon given in his honor by the UCC staff on June 10th, stated that in his 12 years of service as director of the Computer Center one of the things that gave him great satisfaction was the fact that he had acquired and kept a competent and enthusiastic staff.

Dr. Stein resigned as director of the Computer Center this June in order to devote more time to his primary interests, teaching and research in the use of large scale computers.

Dr. Richard P. Halverson is the new Acting Director of the Computer Center and Dr. Stephen Kahne is the Assistant Director. Dr. Halverson is a Professor of Electrical Engineering and Dr. Kahne is presently the director of the Hybrid Computer Laboratory.

UCC SUMMER SHORT COURSES

*FORTRAN

June 29 through July 10 (2 weeks), 4-6 PM, Mechanical Engineering 221

*COBOL

July 13-24 (2 weeks), 3-4 PM, Mechanical Engineering 221

*CDC 660Q SCOPE SYSTEM

July 27-31 (1 week), 3-4 PM, Mechanical Engineering 221

*COMPASS & MACHINE LANGUAGE

August 3 - 14 (2 weeks), 3-4 PM, Mechanical Engineering 221

*MNF

August 3-5 (3 days), 4-6 PM, Mechanical Engineering 221

No fees are charged for the courses and no registration is required.

MEMORANDUM TO SUMMER SESSION INSTRUCTORS

For these summer sessions and the following school year we urge that courses using the 6600 and Fortran use the MNF Fortran compiler. Its error detection capability, cross reference tables, trace abilities all enable students, instructors, and our consultants to pinpoint problems very quickly. Human time and computer time are both used economically.

We will now start using a sub-monitor system for these classes which will simplify the control cards and enable the instructor to specify the maximum time and page count. Under this sub-system the MNF compiler is only loaded once and sma-1 student jobs will go through the overall system very rapidly.

The only control card needed for this sub-system is a double-period card, periods in columns 1 and 2 followed by a name, account number, and MNF parameters. The name is a 1 to 5 character Fortran name, preferably part of the student's name. Following the name and a comma or a left parenthesis there must be the 8-digit account number assigned by the UCC for the course. The MNF parameters, in any order, follow, each separated by a comma or left parenthesis from the previous item. The recommended parameters are:

T = integer execution time limit in milliseconds

P = integer execution output page limit (instructor's limit will override)

E = 1, all error messages except non-USAS1 messages are printed

D = debugging mode, execution proceeds as far as possible

If desired, the cross-reference tables may be suppressed with R = 0.

A period or a right parenthesis terminates all parameters and commentary information follows. For the operators' use we must have the following information--department name and course number, section number, student's name. This entire card must be printed at the top.

Following the double-period card is the normal 6600 Fortran deck starting with the PROGRAM card and ending with the last END card and an ordinary 7-8-9 card. The data, if any, follows the 7-8-9 card and the job is terminated with a blue 7-8-9 square card available on the input shelf. Note that the student must not use an orange 6-7-8-9 card. Also, cards with periods in columns 1 and 2 other than the job card are not allowed. These will terminate the job.

As before, student decks are placed in a tray marked for the course or department on the input shelves in the hall in Experimental Engineering and the output is returned on the marked shelves in the basement.

All users with MNF problems should contact Larry Liddiard (Room 217) or Jim Mundstock (Room 212).

NEW & USEFUL

MODIFY

MODIFY is a program designed to maintain files of symbolic source information. In many ways it is similar to the standard SCOPE program UPDATE. However, in most respects, it is much better than UPDATE. For example:

1. MODIFY uses the random file capabilities of SCOPE to greatly reduce the CPU, PPU and real time necessary to process modifications,
2. source lines are not restricted to 72 columns as in UPDATE,
3. files created by MODIFY may be CATLOGed to show contents.

When used (in a special mode) with the present version of COMPASS version 2.0, the largest savings in time are realized. Programmers are urged to investigate the usefulness of MODIFY.

A preliminary version is presently available on the system library. Manuals are available for reference in Room 227 Experimental Engineering.

ERRSET

Fortran programmers are usually frustrated by formatted input data which may contain 'garbage' in supposedly numeric fields. Many jobs are aborted with the well known "FATAL ERROR 78 - ILLEGAL DATA IN FIELD". Many solutions to this problem exist (for example, checking each character), but one simple solution is to use the Fortran Extended compiler and one of its subroutines called ERRSET. Although this routine has been available since the inception of SCOPE 3.1.6 in July 1969, it seems that the inclusion of ERRSET has been overlooked. The routine "intercepts" fatal error 78, prints the offending line image, increments a counter, and returns to the calling program.

Calling sequence:

CALL ERRSET(A,B)

- A is an integer variable which will contain the number of bad unit records encountered
- B is either an integer constant or variable which specifies the maximum number of bad unit records allowed before the job is aborted.

The call should be made before any input is initiated.

Limitations:

1. The FTN compiler must be used. The routine is not available for RUN-FUN.
2. The maximum error count is applied to all files. The line image and file name are, however, both printed on file OUTPUT.

SEQUENS

A preliminary version of SEQUENS, a Fortran-Compass deck sequencer, is available. Subject to mild constraints (e.g. compilability), the input decks are reproduced on a user's file with sequence numbers in columns 73-80. The sequencing increment is up to the user, and the program prefaces the digits of the sequence number with as many characters from the subprogram as possible. Cost is approximately .2¢ per card for CP time (plus another .2¢ per card in the typical case of punching out the sequenced deck).

A binary deck, as well as the details of using SEQUENS, are available from Mike Rebmann, 230 Ex, 373-7746.

MAGNETIC TAPE TESTER

A new subroutine is now available which tests magnetic tapes for parity errors. Writeups for routine MTTESTR are available in Room 238 Experimental Engineering.

LIBRARY ADDITIONS & CORRECTIONS

- BMD02D - correction for error which occurred when more than 15 variables were to be cross-plotted according to PLOTSL card.
- CHSQ - for chi-square statistic 80 (or for chi-square statistic 14 with odd degrees of freedom), a previously erroneous CHSQ result was corrected.
- MXLNEQ - error occurring when more than 1 set of equations were being solved was corrected.
- MXMOV
MXMPLY
MXMPLYI - new revised versions which feature better error messages, improved speed, and correction of a rarely occurring MODE1 error.
- RAN3F - special case of call for only 1 random number corrected
- RKGILL - correction of error message and addition of call of user subroutine only if zero step-size requested.
- SYMINV - correction for error message
- UMST530 - automatic field-length reduction implemented; TAPE2 action corrected to be as per UMST manual; field length check for minimum field length corrected.

FOR YOUR INFORMATION

Recorded Message

A recorded message with information on current job status is again available on 373-4994. The message is kept current and includes the BIN numbers of completed jobs and other messages of special interest.