

COMPUTER CENTER NEWSLETTER

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Address all communications for the Newsletter to Judy Lawrence, Bldg. 50A, Rm. 1148
Ext. 5871

USE THE 6600!

This Christmas, a new computer will be delivered to the Laboratory: will you be ready to use it? Start now: write a 6600 program and run it in Los Angeles! Be the first in your building to know what ****MO**** means!

Chippewa Workshops

On Wednesday, October 20, and Wednesday, October 27, at 1:30 p.m. in the Building 50 Auditorium, R. C. Gunther of CDC and C. W. Stevenson and D. F. Stevens of LRL will conduct two workshops on the Chippewa Operating System. The first will be essentially a repeat of the basic workshop given last September 23, containing an introduction to the Chippewa control cards and a discussion of FORTRAN incompatibilities. The second will be a less formal session on operation experience, which we urge all current users with questions, problems, and complaints to attend.

Diprogramming Changes

Effective October 13, a new Diprogramming system is operational. Changes include:

1. Use of Channel H clock for more accurate time accounting.
2. A comment on the user's listing when the job either is terminated by the operator or runs overtime.
3. The on-line printer page is split logically down the middle. Core A job comments appear on the left half of the page and Core B job comments appear on the right. Only the first 60 characters of a print line message are actually printed.
4. The comment "BEGIN EXECUTION." is put on the user's listing at the appropriate time.

6600 Notes

1. The second distribution of the Chippewa Handbook is attached to this Newsletter. It includes a current table of contents, the rest of Chapter 1, and all of Chapters 2, 3, and 4.
2. An improved ASCENT Assembler (written by NCAR) is now available in the Chippewa System. Descriptive write-ups may be obtained from the librarian.
3. Current bugs in FORTRAN.
 - (a) ENCODE will not execute if the associated FORMAT specification is longer than one CM word, and is arranged so that the last format conversion specification letter in any CM word is X. (There are 10 characters in a CM word; the count begins with the initial left parenthesis and includes all blanks.) Examples:

10	20
(4HbbA1,6X,I3)	
(1H1,b25X,b5F6.2)	
(I5,bE9.4,b2X,A10,2X,2E9.4)	
 - (b) If DECODE discovers an error, the message printed in the DAYFILE is "MESSAGE FORMAT ERROR" instead of a description of the error discovered.
 - (c) Arrays may not be doubly subscripted in DATA statements.
 - (d) The EXTERNAL statement does not work properly.
 - (e) If (I.GE.0) GO TO 50 does not work properly if I = -0.
 - (f) The last input card of a job is read twice before the END FILE ON DATA INPUT exit is taken.
4. WARNING: A logical IF (one or two branch) will take the FALSE. branch only when the value of the logical expression is + 0. Since the logical operators .AND., .OR., and .NOT. are masking operators, this means that unless $X \equiv 0$ or $X \equiv -0$, we will have both "X" and ".NOT.X" evaluated as .TRUE. in a logical IF. For example, if $X = 1.0$, then $X \equiv 17204000000000000000_8 \neq 0$, hence, is .TRUE., and $.NOT.X = -X \equiv 6057377777777777777_8 \neq 0$, hence is also .TRUE. !
5. Effective immediately, input tapes for 6600 runs will remain in Los Angeles to facilitate reruns. Do not submit tapes which are not expendable.

Dave Stevens

6600 Utility Programs

A collection of mathematical utility routines is being prepared for the 6600 computer under the Chippewa Operating System. This collection will generally consist of programs currently being used on the 7094/7044, although some new routines will be added. Modification, if necessary, to existing routines will be made to take advantage of the increased precision of the 6600.

Abstracts of 6600 programs will be published in the Newsletter as they are submitted to the computer library.

Carl Quong

6600 Program Abstracts

ZO BKY VARMIT

VARMIT: Variable Metric Minimization
(E. R. Beals, Chippewa FORTRAN, 6600)

Determines local minima of differentiable functions of up to 40 variables. Uses an interative gradient method with a variable metric. A detailed description of the method may be found in the Argonne National Laboratory Report, ANL-5990 (Rev. 1959): Variable Metric Minimization, by W. C. Davidon.

This program is also available in FORTRAN IV for 7094.

E2 BKY LSQVMT

LSQVMT: Least Squares VARMIT
(E. R. Beals, Chippewa FORTRAN, 6600)

Determines the best (in the least-squares sense) set of parameters for a given function form and for a given set of data points. Uses VARMIT (ZO BKY VARMIT) to minimize the weighted sum of squares.

This program is also available in FORTRAN IV for 7094.

F4 BKY LINIT

LINIT: Linear Systems With Iteration
(L. P. Meissner, Chippewa FORTRAN, 6600)

Solves systems of linear equations, including matrix inversion and evaluations of determinants, and including ill-conditioned systems.

Uses Wilkinson's method, consisting of Crout's Method with row equilibration, column pivoting, and iterative improvement. Double precision is used for the fundamental scalar products. See Algorithm 135, ACM Communications; November, 1962, July, 1964, February, 1965.

This program is also available in FORTRAN IV for 7094.