

C.S.I.R.O. COMPUTING RESEARCH SECTION

NEWSLETTER NO. 17 - 1.10.66

I. GENERAL

Publications Issued this Month

- NL Newsletter No. 17
- LM Library Accession List No. 9
- * TM Memorandum No. 6. The C.S.I.R.O. On-Line System, User's Guide. T. Pearcey, C.R.S., Canberra.
- * M6 Manual Supplement No. 27. Overlays on the DAD System. (Ref. DAD System Programmers Manual Pt. 1) T. Pearcey. September, 1966.
- * These publications will be issued during the month.

Other New or Revised Publications this Month

Misc. Publication No. 8. Application form for Subroutine Write-ups and other publications issued by C.R.S. (see also page 3)

DAD System, Programmers Manual Pt. I. T. Pearcey. September, 1966.

C.S.I.R.O. Subroutines

C3 CSIR GENBESS

Authors J.J. Russell, P.W. Milne, C.R.S., Melbourne.

Provides a comprehensive routine for the evaluation of Bessel functions.

E2 CSIR FIT

Authors S. Albright, A.C. Beresford

Revised by J.W. Spencer, Division of Building Research, Melbourne.

This modified version of the original routine is now available.

Subroutines - COOP and CSIR

Following the article on subroutines in Newsletter No. 14 there has been an increased demand for source decks, binary decks, listings and subroutine write-ups. At times it has been difficult to maintain a prompt service and for this reason a change in the system is proposed.

It is proposed to hold a copy of all the subroutines on magnetic tape and to have a library subroutine which the user can employ to output a card copy or a listing of the subroutines he requires.

The calling sequence will be

CALL SRLIST (NAME,NS,NB,NL)

where NAME is the identification of the subroutine

e.g. C1 CSIR ZERØBESS
 NAME

NS indicates the number of copies of the SOURCE deck required.

NB indicates the number of copies of the BINARY deck required.

NL indicates the number of copies of the listing required.

Examples:

NAME = 8HMTRXPACK

CALL SRLIST (NAME,1,0,2)

would produce 1 source deck and 2 listings of the subroutine F1 CSIR MTRXPACK

N = 3HFIT

CALL SRLIST (N,3,1,0)

would produce 3 source decks and 1 binary deck for the routine E2 CSIR FIT.

N.B. Where the subroutine names are less than 8 characters it is important to define them left justified by the nH type Hollerith constant.

BMD Programs are not included in this system.

Subroutine Write-ups are obtained, as before, from the Librarian, Canberra, or from the operator in charge at any of the subsidiaries.

Program Decks from Users

Many users have been cooperative in providing write-ups of subroutines which they have developed, and which they feel might be of more general usage. It would be appreciated if they would submit one copy of the deck to their local centre at the same time as the subroutine specification is submitted.

Correction Newsletter No. 14

Subroutines

Please note that the subroutine Q5 CSIR TIMER by Dr. J.K. Mackenzie is written in 3200 COMPASS and the designation * should therefore be changed to **.

II. 3600

Accounting under DAD

As from October 1st the interim method of job accounting under DAD will be discontinued and will be replaced by a scheme more representative of actual usage which will include some charges for the use of peripheral units as well as for the central processors. Up to 1st October only central processor time was charged for, at the rate of \$120/hr for C.S.I.R.O., Commonwealth Government Departments and Universities, \$240/hr for State Government Departments, and \$360/hr for other users.

The new rates will be \$108/hr, \$216/hr and \$324/hr for central processor time. Any peripheral usage will be reckoned as an equivalent time proportional to the number of drum sectors used, and added to the central processor time to form a total time used for charging purposes. A drum sector is 256 words of drum space. The charge for output peripherals will be:-

<u>Hardware Type</u>	<u>Equivalent Time per Sector (seconds)</u>
Card punch	1.024
Line Printer	0.512
Paper tape punch	1.024
Plotters (large or small)	1.024

The charge for input peripherals - card reader or paper tape reader - or the use of drum space merely as storage and not as an I/O buffer is charged at the rate of 0.384 second/sector. No extra charge is made for the use of magnetic tape.

Accounting for keyboard display use will be incorporated in due course, but as from 1st October requests for PRINT, PUNCH, PLOT, DELETE will be charged under the above accounting scheme. OUT, logical unit 61, will contain a list of the document sizes in terms of drum segments and will include any documents released during the program run. The accounting on OUT will also contain CPU time and equivalent total charge time.

SCOPE 6

On the 1st October SCOPE 6, the latest version of the back up monitor, will be in operation. Under the DAD/SCOPE 6 system all SCOPE runs will have on-line peripherals, i.e. the time taken for output on all peripherals, including plotting and card punching, will be charged at the CPU rate. Under SCOPE 5 multiplex, the time taken for plotting or card punching was not charged.

Overlay tapes in absolute form will have to be recompiled under SCOPE 6 for SCOPE jobs or under DAD for DAD jobs.

LOAD-AND-GO overlay tapes prepared under SCOPE 5 will run under SCOPE 6.

LOAD-AND-GO or absolute overlay tapes prepared under SCOPE 6 will not run under DAD and vice-versa.

Normal LOAD-AND-GO tapes, or binary decks, which have been prepared under SCOPE 5 or DAD will run under SCOPE 6.

A new version of FORTRAN is used under SCOPE 6 and FORMAT statement errors will be diagnosed at compile time. If these errors are fatal loading of the program will not be attempted. Thus some programs which would load under SCOPE 5 will not load under SCOPE 6.

Q8QERROR

The specification of this 3600 library subroutine has been changed to terminate programs with large numbers of errors. This is necessary because the operator is unaware, under the DAD system,

of the fact that a program is producing large volumes of error diagnostics.

The specification is:-

If more than 100 diagnostics occur, terminate the program. A final diagnostic is given before the termination, viz:-

JOB TERMINATED - GT 100 ENTRIES TO Q8QERROR

This seminar postponed until Nov. 10th

Seminars - Canberra

The following seminars have been arranged.

<u>Date</u>	<u>Subject</u>	<u>Speaker</u>
October 13	A Proposal for an On-line Facility for Picture Processing and Graphical Communication.	Dr. J.P. Penny
October 27	Subroutine Package for Use with the Vista.	Dr. C. Abraham
November 10	To be advised	
November 24	A Simple Compiler-Compiler	Dr. P.J. Claringbold
December 8	Analogue Computing - State of the Art.	M.J. Cumming
December 22	Recent Advances in Numerical Classification.	Dr. W.T. Williams

The meetings which are all on Thursdays will begin at 3.30 p.m. except for the meeting on October 27th which will begin at 10.15 a.m. and will continue in the afternoon.

The location is the Lecture Room, Computer Building, Clunies-Ross Street, Black Mountain, A.C.T.

Basic Fortran Course

Canberra, October 31st - November 4th. Application Forms from Enquiry desk or Room 104.

Staff News

Mr. J.S. Drabble has joined the Education Section and will be based at Canberra. Mr. P.P. Hanlon has transferred from the Melbourne subsidiary to Canberra.

III. 32003200/3600 Program Control Cards

Newsletter No. 12, page 3, gave a method whereby 3200 and 3600 program cards may be mixed under the control of the job stacking program at the subsidiary areas. This modification used columns 73-80 of the program card to define on which machine the program should run, but thereby removed the facility for sequence numbering of the particular program card. The characters used were:

3200 ØONLY or 3600 ØONLY

In order that some sequence numbering facilities might be preserved, an alternative method of specification has been allowed, using only columns 73-75.

The characters 32Ø may be used as equivalent to 3200 ØONLY
and 36Ø " " " " " " 3600 ØONLY

3200 Label Writing and Checking

In order to anticipate future modification to the 3200 systems the calling sequences for the label writing and checking routines (announced in Man. Suppl. 26), have been extended:-

```
CALL LABEL32 (U,RNAME,IED,IRL)
K = LABCK32 (U,RNAME,IED,IRL)
```

where IED and IRL are the edition and reel numbers (integer). If either is zero for LABCK32 the appropriate field in the label is not checked.

Note that only the first 8 characters of a DAD or SCOPE 6 label name will be checked.

3200 System Changes

1. A reference option has now been added to 3200 FORTRAN. If an R is included in the parameter list on the FORTRAN card (e.g. ⁷FORTRAN,L,X,R), details of the storage locations of variables and ⁹labelled statements will be output. It is recommended that all debugging runs be made using this option.

2. At the moment some function names normally regarded as type real are automatically declared as type integer by the 3200 FORTRAN compiler. This feature will shortly be removed for compatibility with the 3600. The functions in question are: AND, OR, EOR, SSWTCHF, DVCHKF, EXFLTF, OVERFLF, EOFCKF, UNITSTF, SLITEF, and SLITETF.

3200 users should check that any existing programs which use these functions declare them to be type integer.

3. A package of subroutines (FREAD, FWRITE, FOPEN, FCLOSE) to enable the Data Processing Package (DPP) to be used by FORTRAN routines, has been added to the 3200 Library tapes. Further details may be obtained from subsidiary staff.

4. An entry point REWOVER has been added to the overlay execution subroutine FLOVER. This resets the overlay/segment searching pointer to the beginning of the overlay tape.

The procedure is necessary if for some reason the program causes the tape to be moved for some other purpose (e.g. to read or write a data file following the overlay file). After such repositioning the program must CALL REWOVER before calling in the next overlay or segment.

