

C.S.I.R.O. SCIENTIFIC COMPUTING NETWORKNEWSLETTER NO. 2 - 27/10/641. OPENING CEREMONY

The Computing Laboratory at Canberra was officially opened on Thursday, September 17th, by Sir John Cockcroft, O.M.

2. STATUS:

Canberra: Fully operational. For general details, see CORESEARCH NO. 67.

Adelaide: Machine and all peripherals except fast line printer installed. Acceptance tests will begin shortly.

Melbourne: Installation expected in November.

Sydney: Machine and all peripherals except fast line printer installed. The system is expected to be operational in early November.

3. PROGRAMING

SCOPE 4-22 is now in operation.

SCOPE 5.1 will be operational shortly. This will supervise the following programing systems:

FORTTRAN	4.1
COMPASS	4.0
ALGOL	1.0
COBOL	1.1
SORT	1.0

The system changes, mainly equipment mnemonics, will be the subject of a Technical Note to be issued shortly.

4. RUN TIME AND CHECKOUT/PRODUCTION

Users are reminded that it is essential to estimate accurately the expected program RUN TIME and to indicate clearly whether the program is for CHECKOUT or PRODUCTION purposes. This is necessary as priority in job scheduling is determined by these factors.

5. SUBROUTINES

A.CO-OP. The following new subroutines are now available under the CO-OP users scheme.

F 2 SAND GERIAC GAUSSIAN ELIMIN WITH ROW INTERCHANGE AND  
CORRECTIONS F-60

F 4 SAND HOUSE SR HOUSE SR F-60

G 5 SAND SBELL1 SBELL1

G 5 SAND SBELL2 SBELL2

H 2 SAND MIN MIN

U 2 CODA FOG FOG F-63

U 3 CODA GRACE 1 GRACE 1 F-63

U 3 CODA GRACE 2 GRACE 2 F-63

T 1 CPAD TRAVERSE TRAVERSE CLOSURE F-62

U 7 CODA S4CYCELL S4 CYLINDRICAL GEOMETRY CELL CODE F-63

B 1 CODA SINCOSE FLOATING POINT SINE OR COSINE

F 1 CODA MATINV MATRIX INVERSION WITH SOLUTION OF LINEAR  
EQUATIONS F-63

F 2 CODA MATALG FORTRAN SIMULTANEOUS LINEAR EQUATIONS  
SUBROUTINE F-63

U 4 ANL MRGATROD MURGATROD F-62

B 1 CODA ASINF FLOATING POINT ARCSINE - ARCCOSINE

B 1 CODA TANHF FLOATING POINT HYPERBOLIC TANGENT

M 2 CODA BIRDCONV BINARY DECK CONVERSION

N 2 NSAR DISASMBL DISASMBL

Q 4 NPGS GRAFPLOT 1604 GRAPH PLOTTING SUBROUTINE F-63

U 6 CODA FORM FORM F-63

Z CODA SAMPLE SAMPLE

A 1 UTEX CMSQRT 36-BIT PRECISION, FLOATING-POINT,  
COMPLEX SQUARE ROOT

A 1 UTEX DBLCMSQT 84-BIT PRECISION, FLOATING-POINT,  
COMPLEX SQUARE ROOT

E 1 CODA COLTCHEB COLLAPSE TCHEBYCHEV POLYNOMIALS F-63

F 1 UTEX SCAPROCM 36-BIT PRECISION, COMPLEX SUMMATION,  
WITH HIGH ACCURACY

F 1 UTEX SCAPRODB ACCURATE REAL, FLOATING-POINT SCALAR  
PRODUCT

F 4 UTEX JCBFIX EIGENVALUES AND EIGENVECTORS OF A REAL  
SYMMETRIC MATRIX, BY THE CYCLIC-THRESHOLD -  
JACOBI METHOD

G 2 UTEX ABSTRAC COMPLETE FACTOR ANALYSIS AND FACTOR-  
SCORE COMPUTATION

G 2 UTEX AUTOCROS AUTO-AND CROSS-LAG INTERCORRELATIONS

U 1 CODA SIZZLE SIZZLE F-63

U 2 CODA EQUIPOIS EQUIPOISE 3A F-63

U 6 CODA TUZ TUZ F-63

U 6 CODA ZUT ZUT F-63

C 3 NYU GAA NORMAL PROBABILITY FUNCTION

E 2 UTEX LSCFWOP LEAST SQUARES CURVE FITTING WITH  
ORTHOGONAL POLYNOMIALS F-63

Z 1 CODA CDAPCOMP CODAP TO COMPASS TRANSLATOR

B 5 CODA F-63CP FORTRAN-63 COMPLEX ROUTINES

C 2 UTEX ALLROOT ZEROS OF ARBITRARY FUNCTIONS F-60

G 2 UTEX REGRANAL1 MULTIPLE CORRELATIONS AND REGRESSION  
ANALYSIS

Z 1 CODA COMPCOMP COMPASS PLUS CODAP TO COMPASS TRANSLATOR  
F-63

C 1 UOFM POLYVAL POLYNOMIAL EVALUATORS

U 3 UCSD BESSELC	BESSEL FUNCTIONS OF FIRST AND SECOND KIND FOR COMPLEX ORDER AND COMPLEX ARGUMENT F-63
C 3 UCSD BESSELI	BESSEL FUNCTIONS OF FIRST AND SECOND KIND FOR COMPLEX ORDER AND IMAGINARY ARGUMENT F-63
C 3 UCSD BESSELR	BESSEL FUNCTIONS OF FIRST AND SECOND KIND FOR REAL ORDER AND REAL ARGUMENT F-63
C 3 UOFM CDFN	NORMAL CUMULATIVE DISTRIBUTION FUNCTION AND ERROR FUNCTION
C 3 UOFM ERFN	NORMAL CUMULATIVE DISTRIBUTION FUNCTION AND ERROR FUNCTION
C 3 UOFM CDFNI	INVERSE OF THE NORMAL CUMULATIVE DISTRIBUTION FUNCTION
D 1 UOFM ROM1F	NUMERICAL INTEGRATION USING THE ROMBERG METHOD
D 1 UOFM ROM2F	ROMBERG INTEGRATION WITH ERROR CONTROL
D 2 UOFM RKGHN	RUNGE-KUTTA-GILL LINEAR DIFFERENTIAL EQUATION SOLVER F-62
E 1 UOFM AITKENF	AITKENS METHOD INTERPOLATION
E 2 UCSD LSQPOL	LEAST SQUARES POLYNOMIAL FITTING F-63
E 2 UOFM ORTHON	LEAST SQUARES OR REGRESSION WITH ARBITRARY FUNCTIONS
F 1 UOFM MXOPRP	MATRIX OPERATIONS PACKAGE
F 2 UOFM MXTRID	SOLUTION OF TRIPLE DIAGONAL SYSTEM
F 2 UTEX GAUSS2	SOLUTION OF SIMULTANEOUS LINEAR ALGEBRAIC EQUATIONS
K 3 UTEX DUPTAPE	DUPTAPE-DUPLICATE TAPE
U 3 CODA FUGUE	FUGUE F-63
U 4 CODA AIREK	AIREK III F-63
G 2 SAND WRAP	WEIGHTED REGRESSION ANALYSIS PROGRAM (WRAP)
C 1 UCSD HERMIT	HERMITE POLYNOMIAL GENERATOR F-63
C 1 UCSD LEGEND	LEGENDRE POLYNOMIAL GENERATOR F-63
C 1 UCSD TCHEBY	TCHEBYSHEV POLYNOMIAL GENERATOR F-63
C 3 SAND ELLPINT	COMPUTATION OF COMPLETE ELLIPTIC INTEGRALS K AND E F-60
C 3 SAND GAMMALN	LN GAMMA(X) FOR X GREATER THAN 0 F-60
D 1 SAND GAUSSN	NUMERICAL INTEGRATION BY GAUSSIAN QUADRATURE F-60
D 1 SAND NEWTN	NUMERICAL INTEGRATION BY NEWTON-COTES QUADRATURE F-60
D 2 SAND ADAMS	NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS F-60
D 2 SAND MILNE	NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS F-60
D 2 UCSD RKLDEQ	RUNGE-KUTTA-GILL LINEAR DIFFERENTIAL EQUATION SOLVER F-63
D 2 UTEX RKAMSUB	RKAMSUB F-63
E 2 SAND GENLSQ	CURVE FITTING BY THE METHOD OF LEAST SQUARES F-63
G 2 UCSP BIMO	MULTIPLE REGRESSION, COMPREHENSIVE ANALYSIS F-63
J 7 UCSD GP PLOT	GENERAL PURPOSE X-Y PLOTTER F-63
U 2 CODA FAIM	FAIM F-63

U 7 UNC DTF	DTF F-63
B 5 NYU COMP	FORTRAN-63 COMPLEX ROUTINES CODAP-1
M 5 NSAR SLIP	SLIP F-63
M 5 UTEX IPL-V	INFORMATION PROCESSING LANGUAGE V
Q 9 CODA COMPRESS	COMPRESS F-63
M 2 EGG PLOTPACK	PACKING ROUTINE FOR SWAP AE5:03 PLOTTING ROUTINE
U 7 CODA SAIL	SAIL F-63

### LIBRARY SUBROUTINES

Following the implementation of SCOPE 4.22, five new subroutines are available to users. These are:-

G 9 CSIR	SIDADD	ANALYSIS OF A LOGICAL ARRAY.
D 2 CSIR	AUTODEQ	CONTROLLED SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS.
J 5 CSIR	VISIWRIT	VISIBLE CHARACTERS ON PAPER TAPE OUTPUT.
I 5 CSIR	FREEREAD	FREE FORMAT INPUT
J 5 CSIR	PDUMP	DUMPING ROUTINE

Any user who has developed a subroutine which might be of general interest is requested to contact Mr. D. J. Langridge, Computing Laboratory, Canberra.

### 6. CORRECTIONS TO MANUAL SUPPLEMENT NO. 5

Page 6. SSWITCH should read SSWTCH  
Page 7. EOFCHK should read EOFCK

### 7. PUBLICATIONS

The following is a list of Computing Research Section publications to date:-

Procedure for Submission of Jobs. J. P. Penny 22/6/64

Memorandum No. 1)

Memorandum No. 2) )- Superseded by Memorandum No. 4

Memorandum No. 3 Character and Code Sets. T. Pearcey  
June, 1963

Memorandum No. 4 Revised Equipment Configurations.  
T. S. Holden. July, 1964.

Technical Note No. 1 Planned Subroutines for the  
C.S.I.R.O. CDC 3200 Subsidiary Computing System. T. Pearcey. May, 1964.

Technical Note No. 2 Specifications of FORTRAN II/4K  
Language for the CDC 3200 (as known at 16/4/64). T. Pearcey. May, 1964.

Technical Note No. 3 Representation of Line Printer Characters on other Media. T.S. Holden. June, 1964.

Technical Note No. 4 Instructions for Conversion of IBM 1620 FORTRAN II Programs for use on a CDC 3600. S.R. Albright. June, 1964.

Technical Note No. 5 Use of the 3600 CALCOMP PLOTTERS. R.H. Hudson. August, 1964.

Technical Note No. 6 The Use of Paper Tape on the CDC 3600. T. S. Holden. October, 1964

Manual Supplement No. 1 Addenda and Errata to 3600 FORTRAN Reference Manual. D.J. Langridge. 18th June, 1964.

Manual Supplement No. 2 Structure of Standard 3600 FORTRAN Decks. J. P. Penny, 30th June, 1964.

Manual Supplement No. 3 Structure of Standard 3600 COMPASS Decks. J. P. Penny. 30th June, 1964.

Manual Supplement No. 4 Basic FORTRAN II, Reference Manual (Pub. No. 60056900) Preferred Usage. T. S. Holden. July, 1964

Manual Supplement No. 5 FORTRAN-32 As A Compatible Overset of Basic FORTRAN II, and a Compatible Subset of 3600 FORTRAN. J. J. Russell. August, 1964.

Manual Supplement No. 6 Revision of Line Printer Facilities. D.J. Langridge, October, 1964.

Manual Supplement No. 7 Additional 3600 FORTRAN Compiler Errors. J. R. Pendleton. October 1964.

Manual Supplement No. 8 Additions to FORTRAN Library Functions. J.G. Cleary. July, 1964.

Newsletter No. 1 T. S. Holden, July, 1964.

Newsletter No. 2 J. S. Armstrong. October, 1964.

