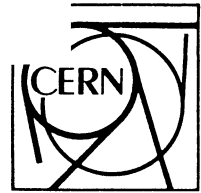


# CERN COMPUTER NEWSLETTER MARCH-APRIL NO. 162 1982



BIBLIOTHEQUE  
21 APR 1982

## CONTENTS

### COMPUTER SCIENCE

	<u>page</u>
1. <del>LIBRARY</del> IF YOU NEED HELP.....	2
DECISIONS TAKEN AT THE USER MEETING OF FEBRUARY 26th . . . . .	3
FORTRAN 8X . . . . .	5
MFZ CDC 7600 PERFORMANCE REPORT- FIRST TEN YEARS . . . . .	5
VERY LONG JOBS ON THE 7600 . . . . .	6
NEW PRODUCTS ON THE CDC 7600 . . . . .	6
FID PARAMETER ON THE CDC 7600 DISPOSE CARD . . . . .	7
CHANGES TO QMAC60 AND QMAC70 . . . . .	8
FCA - FILE CONCATENATOR FOR ASCII TEXT . . . . .	9
SECURITY CONSIDERATIONS WITH WYLBUR . . . . .	9
FORTRAN 77 ON THE CERN IBM's . . . . .	10
NEW PUBLICATIONS IN THE COMPUTER SCIENCE LIBRARY . . . . .	11
CLOSING DATE- NEXT NEWSLETTER . . . . .	12
2. NOTICE OF LIBRARY MODIFICATION . . . . .	13
DESCRIPTION OF MODIFICATIONS . . . . .	13
OBJECT LIBRARIES AFFECTED . . . . .	13
NOTES . . . . .	14
3. COMPUTER CENTRE PERFORMANCE . . . . .	24
IBM SYSTEM . . . . .	24
CDC SYSTEM . . . . .	24
4. WRITEUPS . . . . .	25
5. VOX POPULI . . . . .	26

## 1. IF YOU NEED HELP.....

Most requests for programming help are handled by the-

**PROGRAM ENQUIRY OFFICE**      0900-1200, 1330-1730      513/1-011 13+5564 4952  
closed Monday 0930-1000

Questions concerning the execution of jobs are answered by the-

COMMUNICATION OPERATOR 513/R 4927

Most special requests, for priority or \*P files are handled by the-

COMPUTER COORDINATOR                      L. Pape tel. 2124 or 13+7050

The following list may be useful for people with special requests

## PROGRAM LIBRARY

Help with library programs	Torbjorn Lindelof	513/1-017	4959
Distributing library material	Gudrun Benassi	513/1-014	4951
PATCHY/HYDRA programs	Karin Gieselmann	13/3-028	4861

## MAGNETIC TAPES

Software	Judith Richards	513/1-005	4957
Allocation/Cleaning	Tape Reception	513/R,	4939, 4927
			4925

## COMPUTER SERVICE PROBLEMS

Operations - all aspects	John Ferguson	513/R-030	13+5545
Operations - CDC service	Charles Curran	513/R-033	4849
Operations - IBM service	Dave Underhill	513/R-035	13+5542
Remote services	Martin Sheehan	513/R-034	3348
User Support	Chris Jones	513/1-007	13+5563
Software Systems	Tor Bloch	31/2-028	4949
RIOS's	Lucien Gourdirole	513/R-017	13+5548
Terminal pool	Jean Simeoni	513/S-022	13+5500
CERNET	Mike Gerard	31/3-019	13+5561
	Ian McLaren	513/1-009	5010
Fiche and Plotters	Charles Curran	513/R-033	4849

## OTHER SERVICES

Documentation office	Felicitas Morice	513/1-015	2371
Computer Science Library	Jutta Megies	513/1-011	2379
Mathematical Advisory Service	Benno Schorr	513/2-013	4120
Terminals Service Coordinator	Carlo Vandoni	513/2-006	13+5567
FELIX	Florence Ranjard	2/1-013	3366

## REGISTRATION & ACCOUNTING

Registration & Accounting	Divl. Rep- CNL 156		
New Users	Attila Koppanyi	513/1-019	4933,5029

## 1.1 DECISIONS TAKEN AT THE USER MEETING OF FEBRUARY 26TH

The following sections describe the decisions taken at the Computer Users Meeting of Friday February 26th. The changes agreed at this meeting should be implemented during the second half of April.

### 1.1.1 Scratching Migrated Data Sets

The response of the system is to be changed in the case where a user attempts to scratch a migrated dataset. The sequence

```
SCR datasetname
datasetname HAS BEEN MIGRATED.
RECALL OK ?
```

will be changed to

```
SCR datasetname
datasetname HAS BEEN MIGRATED.
DO YOU REALLY WANT TO SCRATCH IT? IT MAY BE A LIBRARY (PDS).
```

If you give a positive reply (YES, Y, OK) the dataset will be scratched without being recalled, no check being made to see if it is a library and no message being sent to let you know whether the SCRATCH was successful. Wylbur will effectively issue the command 'SCRATCH datasetname MIGRATED NOINFO'.

### 1.1.2 Use of Exec Files

EXEC files are intended for tasks such as

- setting up JCL
- updating lists
- scanning lists

They are NOT intended for jobs such as

- sorting lists
- producing statistics
- any processing that involves loops

Looping exec files are VERY expensive. At present we issue a warning message

1000 COMMANDS EXECUTED WITH NO TYPING. CHECK FOR LOOP.

One or two such messages from time to time is acceptable; MANY or OFTEN is NOT. You can find out how much time an EXEC file is using by issuing the SHOW TIME command before and after calling your EXEC file.

It's anti-social to use more than A FEW SECONDS. We will soon start issuing messages to warn you of excessive use of CPU or too much jumping around in large files. If we don't see a subsequent reduction in the number of exec files using excessive resources we will be forced to abort offending exec files.

### 1.1.3 Default Jobname

Only one job with a given name can be in execution at a time. Jobs submitted from Wylbur with a job card of the form

```
//      JOB      .....
```

at present get job names of the form

```
//JARCP123
//JARCP124      etc
```

Once or twice a week somebody submits 10 or 20 jobs in the same class, at the same time, all with different job names, usually the default name. The result of this is that

- these jobs all go into execution at the same time.
- they block that class for other users
- they are usually all accessing the same datasets, so queue on one another for access

It was thus decided to make the default jobname of the form

```
//JARCP
```

rather than

```
//JARCP123
```

A consequence of this will be that an X job with the default jobname may be prevented from running because a long job with the default name is executing. Conversely a long job may 'lose a turn' of going into execution when it is at the head of the queue if a short job with the same name is executing.

### 1.1.4 JOBS IN HOLD

The question of ageing jobs which are in HOLD was discussed. Although it was recognized that certain users were abusing this facility to reserve slots in the input queue it was decided to continue ageing jobs, as at present, since it is a very convenient way of chaining production jobs which are, for example, writing to successive files on an output tape.

However jobs in HOLD do mean that the LOC and Q commands give misleading answers. In the present situation the LOC command may tell you that you are in CLASS S, position 55. If there are 50 jobs in HOLD you are effectively in position 5. If, on the other hand, HELD jobs were not counted (as was the case in

the early days of the IBM) the LOC command might tell you that you are in CLASS V, position 3. There are 50 jobs in HOLD in two production chains; you are effectively in position 53.

### 1.1.5 TOO MANY JOBS IN THE INPUT/OUTPUT QUEUES

At the moment we need 3 disks to store the input and output queues and the FETCH files compared with the 11 disks available for normal user files.

The operating system contains a critical table known as the JQE (Job Queue Element) table which has one entry for every job in the system. At the moment it has room for 2000 entries. We are reluctant to increase its length too much since this will increase the system overhead particularly for the very heavily used commands LOC ALL and Q,... (The time taken to search the queues increases considerably with the length of the table!) Whenever possible use LOC without parameters. It's much more economical than LOC ALL.

Or even better, use NOTIFY. Let the system tell you when your job has finished.

```
SET JES NOTIFY
or
// JOB .....,NOTIFY=uuu$gg
```

but most of all 

PURGE THE FETCH FILES YOU DONT NEED
-------------------------------------

Judith Richards

### 1.2 FORTRAN 8X

Just as we are introducing FORTRAN 77 as our new standard at CERN, the committee responsible for the FORTRAN language is about to release a draft specification of the next standard, FORTRAN 8X. An article about this proposal appeared in Computer Newsletter 155, and we have now received the latest proposals, which will be discussed at an international meeting in June. Anybody who would like to discuss the next standard, or who has strong views on the future of FORTRAN development, is invited to contact me.

Mike Metcalf (13-5558)

### 1.3 MFZ CDC 7600 PERFORMANCE REPORT- FIRST TEN YEARS

On 24 March, 1972, the CDC 7600 started (albeit erratically) to run real user jobs. The first day saw 6 deadstarts, and this was not improved on the next day which saw 7! However, performance improved after the rather skeletal operating system began to correspond to the manuals, and the hardware problems reduced to a sensible level. For many years the 7600 was 'the' central computer, and even today it remains a relatively general purpose machine (if a little old-fashioned, in some ways). To summarise these first 10 years:

User jobs run..... 5,561,846

Tapes staged..... 1,072,115 (at 2400 ft, to the Moon and back!)

It seems unlikely to me that any other present or future machine will be able to claim figures to rival these. The large number of people who contributed to this result.. CDC/CERN engineers, CDC/CERN systems programmers, users .. deserve our appreciation of their efforts.

C. Curran

#### 1.4 VERY LONG JOBS ON THE 7600

The upper time limit for long jobs on the CDC 7600 was modified on 29/03/82, which will allow more long jobs to execute during the day.

- All jobs which require more than 3000B seconds are treated as P0 jobs (low priority, half price).
- To avoid very long jobs blocking the machine for long periods, thus preventing 'modest' long jobs from starting, the maximum time has been restricted to 4000B. Any job requesting more than this maximum is immediately aborted at submission with the error message "INVALID TIME LIMIT".

If, exceptionally, some jobs need more than this time to run, please contact the Computer Coordinator.

L. Pape / C. Letertre

#### 1.5 NEW PRODUCTS ON THE CDC 7600

A more recent version of all the products (COMPASS, UPDATE, SORTMRG, FTN) as well as FTN5, PMD, CMM and F45 are now available. These products are at the same level as those on the front-ends. The output from COMPASS, UPDATE and FORTRAN compilers is suited for the LASER printer (56 lines/page).

It is strongly recommended that all users test their FORTRAN programs with the new products since we would like to introduce them into the standard system. They can be tested very easily by adding a card NEWPROD to the beginning of a job. This card will attach all the files necessary to get the new products.

```
eg. myjob.  
ACCOUNT,myname,div,group.  
NEWPROD.  
FTN,T,A,U,L.  
FIND,LIB,7600LIBRARY,ID=PROGLIB.  
LIBRARY,*,LIB.      (* to keep libraries introduced by NEWPROD)
```

If intermixed FTN4 and FTN5 routines are to be used, NEWPROD must be called with the parameter FTN4AND5.

NEWPROD,FTN4AND5.

DIFFERENCES

- With the new products programs require 200B to 600B more locations to load.
- Libraries and binaries are compatible.
- MANTRAN is replaced by PMD (Post Mortem Dump) which gives roughly the same information. PMD is supported by CDC and documented in the FORTRAN reference manuals (FTN, FTN5). The symbol table information generated by PMD and MANTRAN are compatible. Nevertheless, minor differences exist between the two products.

	<u>MANTRAN</u>	<u>PMD</u>
The file names are different	ZZZZMP ZZZZSYM	ZZZZZMP ZZZZZSY
The user callable routines have different names	LTPLOAD LTPDUMP DARRAY MANTRAP	PMDLOAD PMDDUMP PMDARRY PMDSTOP

With PMD, no LDSET card is necessary, and if one is supplied, it is ignored: the load map is automatically generated on ZZZZMP. This is forced at compilation time, when the PMD or U parameter is selected on the FTN card. Therefore if you normally copy the load map to OUTPUT, you have to CHANGE YOUR CONTROL CARDS : change the file name ZZZZMP to ZZZZZMP.

- PMD gives little traceback information with SUPRLAY.
- The number of elements of an array to be printed in the traceback can be defined on the LGO card.  
LGO,\*DA=i+j+k.  
will print the first i elements of the first dimension, first j elements of the second dimension, etc.

In order to get a dump of variables in ALL routines, as opposed to those in the traceback chain only, use the parameters \*OP=A.  
LGO,\*OP=A.

**NB :** There is an error in version E of the FORTRAN Reference Manual: the \* in the examples of the DA and OP options is in the wrong place!

Please, transmit any comment and report any problem to the PEO or to

C. Letertre (3347).

### 1.6 FID PARAMETER ON THE CDC 7600 DISPOSE CARD

A new parameter, the FID parameter, is now available on the DISPOSE card on the CDC 7600. The FID parameter allows you to give a name to a DISPOSED file. The usage is

DISPOSE,lfn, ... ,FID=fname.

The disposed file, lfn, is then known only by the name "fname" (i.e it is this name which appears on the banner page of line-printer or microfiche output, and it is "fname" which should be used with the JOBS command). Please note that "fname" must not exceed 5 alphanumeric characters, the first of which must be alphabetic. If fname is less than 5 characters, it is right-filled with display-code zero. The system adds two job sequence characters which are those of the originating job.

C. Letertre

## 1.7 CHANGES TO QMAC60 AND QMAC70

### 1.7.1 QMAC60

The CCL procedure QMAC60,ID=PUBLIC allows users to send files from MFA and MFB to the KOMSTAR microfiche printer on the IBM.

A new option has been added to the procedure to allow users to specify whether the character in column 1 of each line is to be used as a carriage control character. The user will be prompted with

DOES YOUR FILE CONTAIN CARRIAGE CONTROL Y/N ?

Previously the character in column 1 was always interpreted as a carriage control character, which sometimes caused problems if this was not foreseen.

### 1.7.2 QMAC70

The CCL procedure QMAC70,ID=PUBLIC allows files to be sent from CDC 7600 jobs to the KOMSTAR, allowing a number of user supplied options.

In order to obtain a delivery code on the microfiche (eg X2) the CDC job name had to be of the form

X2JOB.

Many CDC users now submit jobs via WYLBUR and to obtain their output as a FETCH file, the CDC job card must be of the form

uuugg.

where      uu=IBM user code  
            gg=IBM group code

To resolve this conflict, a new option can be supplied which will put a delivery code in the microfiche header. This new option is simply activated by the "ROOM card" in the OPTIONS file.

As in the case of QMAC60 above, an option is now available which prevents the character in column 1 of each line of the input file being treated as a character control character. This option is activated by including the "CC card" in the OPTIONS file.



The use of the QMAC70 with an OPTIONS file is demonstrated in the following example.

```
uuugg.
ACCOUNT,....etc...
FTN,L.
LGO.
QMAC70,FILE=TAPE99,OPTIONS.
*EOR
    PROGRAM TEST(INPUT,OUTPUT,TAPE99)

        etc

*EOR

    fortran data cards

*EOR
20 CHARACTER TITLE
COPIES                10
ROOM                X2
CC
*EOR
```

By default the options file is INPUT, as in the example above. If the options file is the local file "lfnopt", then

```
QMAC70,FILE=LIST,OPTIONS=lfnopt
```

would be specified.

M. Draper

### 1.3 FCA - FILE CONCATENATOR FOR ASCII TEXT

FCA administers compound files of ASCII text, in the same way as FCC administers display code text. FCA runs in the Cyber 170 computers and takes the same control statement parameters as FCC. See CERN Computer Newsletter 160 (October - December 1981), pages 10 to 12.

J. Blake

### 1.9 SECURITY CONSIDERATIONS WITH WYLBUR

The cost of security in systems processing sensitive data is well known to be high. Fortunately, in our environment much of this expense can be spared as we need only to offer protection against accidental rather than intentional interference with the work of others. Consequently, Wylbur's security protection is minimal.

Some light-hearted users find this an irresistible temptation to force on their colleagues their kind of humor. Since it is invariably the User Services that end up resolving the situation, we can say, with some authority, that few of their targets share their pleasure.

In order to offer a degree of protection you are STRONGLY recommended to make use of the WYLBUR KEYWORD (logon password) facility. You may do this by typing the command SET KEY. You will be prompted for your current keyword, which by default is the same as your user name. It is also strongly recommended that you change your keyword from time to time. Should you forget it we will help you out.

A. Koppanyi

### 1.10 FORTRAN 77 ON THE CERN IBM'S

FORTRAN 77 is a new version of the FORTRAN language defined by an International standard hence giving much greater compatibility between manufacturers than before.

IBM's compiler for FORTRAN 77 is known as VS FORTRAN and was released in JUNE 1981. It was full of bugs, had no optimization (only OPT(0)), had no support for Hollerith data or variables and had an implementation for the passing of subroutine arguments of type 'CHARACTER' which made it impossible for a FORTRAN 4 routine expecting an argument of type Hollerith to be called from a FORTRAN 77 routine with an argument of type CHARACTER. In particular the lack of Hollerith support meant that no existing large program or package would compile under this compiler. This compiler rigidly obeyed the new standard but in practise it proved impractical in our programming environment. We have therefore decided not to take this compiler.

At the end of 1981 we discovered that SIEMENS market the Fujitsu FORTRAN 77 compiler and obtained a copy for testing. We have found that this compiler has full backward compatibility with FORTRAN 4 plus many new features eg:

- enhanced optimisation (IL)
- improved error reporting
- a post-mortem dump analyser coming soon (a facility similar to MANTRAP on the CDC)
- linkage editor NAME cards (removing the need for EDITLIB)
- support for the 'XL' functions which is not in the IBM compiler
- support for AUTODBL which is not in the IBM compiler
- FORTRAN 4 compatible parameter lists
- hardware recovery from underflows

We are particularly attracted by the improved error reporting of the SIEMENS compiler, as this saves us manpower in adding our local mods in this area, and

also by the availability very soon of the post-mortem dump analyser which has always made a positive contribution to debugging on CDC (MANTRAN).

This compiler is highly backward compatible with the present FORTRAN compilers, for example the UA2 analysis of 100000 lines and the EMC analysis of 50000 lines compile with LEVEL 4 errors only while the TRIDENT program has 4 errors of LEVEL 8 all of which are due to redundant brackets in implied DO-loops.

We have therefore decided to base our IBM FORTRAN 77 service on the SIEMENS compiler rather than the IBM VS FORTRAN compiler. We consider this compiler to match our needs and hope that other High Energy Physics labs might consider using it. There will be an incompatibility with VS FORTRAN at the object module level and warn users who are used to transferring object modules between IBM's that this will no longer be possible and they will be obliged to transfer source code in future to or from a VS FORTRAN site. A complete set of compiler procedures like those for NFORT and XFORT will be provided using J as the first letter. (J has been chosen since all diagnostics and messages begin with JZ.)

The availability of these procedures will be announced in a Wylbur News shortly after the appearance of this Newsletter. If no unforeseen problems arise these procedures should contain a reference to the new version of the CERN library compiled with the SIEMENS compiler. However the testing done on this library will have been very limited and it is unreasonable to expect that there will be no problems with it. CERN enhancements not already provided by the compiler will be integrated eventually.

This release will be synchronised with the production of the CERN Program Library compiled with FORTRAN 77 on both IBM and CDC. We are aiming for a release date of just after Easter ie at the end of April.

J.Richards, H.Renshall

### 1.11 NEW PUBLICATIONS IN THE COMPUTER SCIENCE LIBRARY

#### • NEW BOOKS RECEIVED IN MARCH:

- Mosteller: System programmer's problem solver (518.5 MOS)
- Greenfield, J.D.: Using microprocessor and Microcomputers: the 6800 family (518.5 GRE)
- Ashley: Job Control Language, a self-teaching guide (518.5 ASH)
- Rindfleish: Utilising system 360/370 OS and VS Job Control Language and utility programs (518.5 RIN)

#### • NEW BOOKS RECEIVED IN FEBRUARY

- Mackenzie: Coded characters sets: History and development (518.5 MAC)
- Eisenbach, Sadler: PASCAL for programmers (518.5 EIS)

The new books are displayed for 10 days on the "New Acquisitions" shelf where you may leave your name to receive the book on normal loan.

- NEW PERIODICALS:

- IEEE Computer graphics and applications
- IEEE Micro
- Zero On-Informatique: Hebdo.
- Zero On-Informatique: Mensuel

Please note that the display copy should not be removed from the library. Previous editions which are kept underneath the display flap may be taken on loan (loan slips on the librarian's desk).

Jutta Megies

#### 1.12 CLOSING DATE- NEXT NEWSLETTER

The closing date for the next Newsletter is 14 May 1982. Articles already in machine readable form (SCRIPT input, with a format in mind compatible with 80 chars/line, 12/inch) are far more welcome than those which have to be typed! The Computer Newsletter is produced monthly by the User Support Group in the Computer Centre, with Michael Draper as Editor together with Chris Jones and Judith Richards as sub-Editors.

#### Distribution of the Newsletter

The Newsletter is distributed inside CERN to all registered users of the central computer systems, and to any person requesting a subscription from-

Computer Science Library  
CERN  
CH 1211 GENEVE 23

## 2. NOTICE OF LIBRARY MODIFICATION

Introduction date and time: See TV screen

### 2.1 DESCRIPTION OF MODIFICATIONS

			PAM-ident	
A105	MPA	Multiple-Precision Floating-Point Arithmetic. New package. See section 2.3.2 below.	None	
C324	CGPLOG	Bug, causing incorrect results for $1 < x \leq 2$ , fixed.	GEN	1.00
D151	DIVON4	COMMON block name /DATE/ changed to /D151DT/ to avoid name clash with FORTRAN '77 library.	GEN	1.00
E206	TRICOF	Variable name 'NINT' changed to 'NINR' to avoid name clash with FORTRAN '77 library.	GEN	1.00
G112	FUNLAN	The Landau Density Function. New package.	GEN	1.00
G903	GENLAN	Generation of Landau-Distributed Random Numbers. New package.	GEN	1.00
I101	EPIO	See PAMTITLES in section 2.3.5 below.	EPIO	1.35
K510	RETRNF	Minor bug fixed in NOS/BE version.	KERNCDC	2.00
L300	SPY	Macro name changed to avoid system clash.	GEN	1.00
M409	UBUNCH	New entry points added for future FORTRAN '77 use.	KERNCDC	2.00
M503	UBITS	Locate the One-Bits of a Word or an Array. New package.	KERNIBM	2.00
			KERNFOR	4.00
Q210	ZBOOK	See PAMTITLES in section 2.3.5 below.	ZBOOK	2.04
T604	POISCR	Solution of Poisson's or Laplace's Equation in Two-Dimensional Regions. New package.	POISCR	2.39
W999	POOL-W	W1013 GEANT - See PAMTITLES in section 2.3.5 below.	GEANT	2.09
Y250	HBOOK	See PAMTITLES in section 2.3.5 below.	HBOOK	3.24
Y251	HPLLOT	See PAMTITLES in section 2.3.5 below.	HPLLOT	4.01
Z024	REQPF	Minor bug, affecting 7600 export version, fixed.	GEN	1.00
Z210	EXCPRD	Package and entry name changed from 'EXCPIN' to avoid clash with Rutherford Library. See section 2.3.3 below.	GEN	1.00
Z300	IOPACK	See PAMTITLES in section 2.3.5 below.	IOPACK	3.04
	FTINFO	New entry in PULIB associated with FTDD.		

### 2.2 OBJECT LIBRARIES AFFECTED

<u>7600LIBRARY:</u>	C324, D151, E206, G112, G903, I101, L300, M409, M503, Z024 CHECOF (E405) added to 7600LIBRARY.
<u>6400LIBRARY:</u>	C324, D151, E206, G112, G903, I101, K510, M409, M503 REQPF (Z024) removed (does not function properly at front-ends as installed at CERN). CHECOF (E405) added to 6400LIBRARY.
<u>CR.PUB.CERNLIB:</u>	C324, D151, E206, G112, G903, I101, M409, M503, Z210, Z300
<u>CR.PUB.PULIB:</u>	FTINFO
<u>CR.PUB.PRO.PGMLIB:</u>	T604
<u>PROPGMLIB:</u>	T604

GENLIB: Q210, W999, Y250, Y251  
GENLIB6: Q210, W999, Y250, Y251  
CR.PUB.GENLIB: Q210, Y250, Y251  
PROMPALIB4: A105  
CR.PUB.PRO.MPALIB4: A105

## 2.3 NOTES

### 2.3.1 WRITEUP LIBRARY

The public exec file 'LIBRARY', which was described in CNL 160 (p. 15), returns information about several different program libraries which are offered at CERN. Simply type WRITEUP,LIBRARY from any terminal connected to WYLBUR and choose from the menus offered.

Information is currently available about the following libraries:

CERNLIB CERN Program Library  
CPC Computer Physics Communications Program Library  
HARWELL Harwell Subroutine Library  
NAG Numerical Algorithms Group Library  
NEA Nuclear Energy Agency Data Bank  
NESC National Energy Software Center

User feedback concerning the functioning of this exec file has been (and will be) greatly appreciated.

Torbjorn Lindelof

### 2.3.2 MULTIPLE PRECISION ARITHMETIC

The IMSL Algorithm 524 (MP) - A FORTRAN Multiple-Precision Arithmetic package - is now available at CERN as package MPA (A105) on both IBM and CDC machines. MPA provides the user with a set of functions and subroutines which evaluate floating-point expressions, including many standard functions, to 'arbitrary' precision (limited only by available storage). The following example shows how MPA can be used to calculate pi to one thousand decimal places and print the result:

```
// JOB
// EXEC NFORTCG,LLB5='CR.PUB.PRO.MPALIB4'
//C.SYSIN DD *
      COMMON B, T, M, LUN, MXR, R
      INTEGER B, T, R(6014)
C TEMPORARY MP VARIABLES REQUIRE SPACE T+2
      INTEGER X(1002), PI(1002), C(1010)
C MPSET SETS BASE (B) AND NUMBER OF DIGITS (T) TO GIVE THE
C EQUIVALENT OF IDECPL DECIMAL DIGITS. ITMAX2 IS THE DIMENSION
C OF ARRAYS USED FOR MP NUMBERS AND MUST BE AT LEAST T+2.
C LUNIT = LOGICAL UNIT FOR ERROR MESSAGES
C MAXDR = DIMENSION OF R IN COMMON (.GE. T+4)
      LUNIT=6
      IDECPL=1010
```

```

ITMAX2=1002
MAXDR=6014
CALL MPSET (LUNIT, IDECPL, ITMAX2, MAXDR)
CALL MPPI(PI)
CALL MPOUT(PI, C, 1010, 1000)
PRINT 10, C
10 FORMAT(1H1/11X, 60A1/(21X, 50A1))
STOP
END

```

.. which prints

```

3.14159265358979323846264338327950288419716939937510
58209749445923078164062862089986280348253421170679
82148086513282306647093844609550582231725359408128
48111745028410270193852110555964462294895493038196
44288109756659334461284756482337867831652712019091
45648566923460348610454326648213393607260249141273
72458700660631558817488152092096282925409171536436
78925903600113305305488204665213841469519415116094
33057270365759591953092186117381932611793105118548
07446237996274956735188575272489122793818301194912
98336733624406566430860213949463952247371907021798
60943702770539217176293176752384674818467669405132
00056812714526356082778577134275778960917363717872
14684409012249534301465495853710507922796892589235
42019956112129021960864034418159813629774771309960
51870721134999999837297804995105973173281609631859
50244594553469083026425223082533446850352619311881
71010003137838752886587533208381420617177669147303
59825349042875546873115956286388235378759375195778
18577805321712268066130019278766111959092164201989

```

.. in case you want to check if you remembered it right.

MPA should be used with discretion - it is very slow by comparison to 'normal' arithmetic and should only be used when standard DOUBLE PRECISION (or EXTENDED PRECISION) is not enough. Further information is available in the new Long Write-up A105.

Note that this package was purchased from IMSL Ltd and consequently may not be redistributed by CERN.

Torbjorn Lindelof

### 2.3.3 EXCPIN (Z210) - NAME CHANGED TO EXCPRD

The routine EXCPIN for reading RECFM=U magnetic tapes on IBM was copied from the Rutherford library several years ago. Unfortunately the meaning of one of the arguments in the calling sequence to this routine was changed without a corresponding name change. As efforts are now being made to standardize program libraries in High Energy Physics we are therefore changing the name of the CERN version from EXCPIN to EXCPRD. We realize that this will mean some jobs will fail and will have to be recompiled, and apologize in advance for the resulting inconvenience. Please note that better routines (eg which will read from tape or disk in RECFM=U or RECFM=VBS without program changes) are available in IOPACK (Z300).

Harry Renshall

### 2.3.4 NEW VERSION OF EPIO

There is a new version (1.35) of the EPIO package in the latest release of the Cern Program Library coinciding with this issue of the Newsletter. The main changes are the addition of two fast reading routines for a restricted set of options and with less error recovery. There are also some speed improvements in the existing routines but no change in their use. Calls to new and old routines can be freely intermixed.

The calling sequences and restrictions are:

CALL EPFHDR(LUNIT,MLUSER,IHEAD,IBUF,IERR)

Fast logical record header reading routine (similar to EPREAD with MODE=20).

Conditions for use:

1. 16-bit units only (i.e. logical record header consists of 16-bit words).
2. No spanned headers.
3. Always MLUSER words transferred to user (word 3 is header length). This may exceptionally lead to a program range error if the input buffer IBUF coincides with the end of the user program.

REMEDY: increase size of IBUF by  $16 \times \text{MLUSER} / (\text{NO. OF BITS PER WORD})$ .

4. No headerless blocks.
5. No old ep format.
6. No unknown length records.

In addition, no checks are performed to test whether LUNIT is an input unit, or whether the header has been cut.

Conditions 2 to 6 are always fulfilled when writing with EPIO, condition 1 is default when writing with EPIO.

INPUT parameters

LUNIT     User unit number  
MLUSER    No. of header words transferred to user

INPUT and OUTPUT parameter

IBUF       User buffer

OUTPUT parameters

IHEAD     MLUSER words of logical record header (regardless of actual length or of status word 26).  
IERR       Error number

Calls to this routine are entirely compatible with EPREAD calls.

CALL EPFRD(LUNIT,MODE,NW,IREF,IBUF,IERR)

Fast logical record data reading routine.

Conditions for use:

1. 16-bit units only (i.e. logical record header consists of 16-bit words).
2. No headerless blocks.
3. No old ep format.



4. No unknown length records.
5. MODES 11, 12, 13 only (otherwise error 8).

In addition, no checks are performed to test whether LUNIT is an input unit.

Conditions 2 to 4 are always fulfilled when writing with EPIO, condition 1 is default when writing with EPIO.

User data will be truncated at the value in status word 2, but no error will be signalled.

#### INPUT parameters

LUNIT     User unit number  
MODE     11, 12 or 13 (see EPREAD)

#### INPUT and OUTPUT parameter

IBUF     User buffer

#### OUTPUT parameters

NW       No. of words in IREC  
IREC     Record transferred to user  
IERR     Error number

Calls to this routine are entirely compatible with EPREAD calls.

The other changes from version 1.34, which should be transparent to the user are:

- Minor VAX corrections
- Speed-up of unit reference inside EPIO
- Minor (compatible) change in EPBLIN
- Fast CDC versions (COMPASS) of BL016W, BL032W

I.McLaren, H.Grote

### 2.3.5 PROGRAM LIBRARY SOURCE PAM FILES

Below appears the Patchy TITLE's for the list of supported Program Library PAM files. The file names are of the form

CR.PUB.PAM.PRO.name on the IBM

and PR0namePAM,ID=PROGLIB on the CDC MFA

where "name" is given below. This list is accessible via the Wylbur Exec file command WRITEUP,LIBRARY which also gives the list of the corresponding development versions of the PAM files (maintained by the DD/EE group).

PAM name= EPIO

C EPIO 1.35 820307 16.00 CERN PROGRAM LIBRARY EPIO = I101  
C EP STANDARD FORMAT INPUT OUTPUT PACKAGE H.GROTE,I.MCLAREN/DD/CERN  
C  
C CHANGES FROM 1.34  
C MINOR VAX CORRECTIONS  
C SPEED-UP OF UNIT REFERENCE INSIDE EPIO  
C MINOR (COMPATIBLE) CHANGE IN EPBLIN  
C ADDITION OF NEW ROUTINES EPFHDR, EPFRD  
C FAST CDC VERSIONS (COMPASS) OF BL016W, BL032W  
C ADDITION OF NEW TEST PATCH T1FAST  
C

PAM name= FFREAD

C FFREAD 1.02 811111 17.45 CERN PROGRAM LIBRARY FFREAD = I302  
C FREE FORMAT INPUT PACKAGE.  
C R.BRUN, R.HAGELBERG, M.HANSROUL, J-C.LASSALLE  
C

PAM name= GD3

C GD3 2.04 810728 11.00 CERN PROGRAM LIBRARY GD3= J510  
C GD3 GRAPHICS DISPLAY PACKAGE OF R.MILLER ET AL

PAM name= GEN

C GEN 1.00 820401 12.00 CERN PROGRAM LIBRARY GENERAL PAM  
C THIS IS A FIRST VERSION OF THE CERN GENERAL PAM.  
C IT BASICALLY CONTAINS ONLY IBM, CDC AND FORTRAN VERSIONS  
C COMPATIBLE WITH BOTH FORTRAN 66 AND 77.  
C

PAM name= GEANT

C GEANT 2.09 820317 12.00 CERN PROGRAM LIBRARY GEANT = W1013  
C SIMULATION OF PARTICLE PHYSICS EXPERIMENTS.  
C R.BRUN, F.CARENA, M.HANSROUL, J-C.LASSALLE  
C  
C MANY CHANGES FROM 2.00. SEE P=INFORM.  
C

PAM name= HBOOK

C HBOOK 3.24 820317 15.50 CERN PROGRAM LIBRARY HBOOK = Y250  
C HISTOGRAMMING PACKAGE. R.BRUN, I.IVANCHENKO, P.PALAZZI  
C  
C CHANGES FROM 3.23  
C CORRECTIONS IN HREAD/HWRITE FOR VAX

C NEW VERSIONS OF INTARG/FLOARG  
C ADDITION OF ROUTINE HBOOKT (RETURNS HBOOK VERSION)  
C

PAM name= HPLOT

C HPLOT 4.01 820317 17.40 CERN PROGRAM LIBRARY HPLOT = Y251  
C THE HBOOK GRAPHICS INTERFACE.  
C AUTHOR OF INITIAL VERSION 2.00 H.WATKINS  
C AUTHOR OF NEW DEVELOPEMENTS R.BRUN DD/CERN  
C  
C CHANGES FROM 4.00  
C NEW ROUTINE HPLOTT (RETURNS HPLOT VERSION)  
C

PAM name= IOPACK

C IOPACK 3.04 820401 12.00 CERN PROGRAM LIBRARY IOPACK = Z300  
C IBM FORTRAN CALLABLE INPUT/OUTPUT PACKAGE. R.MATTHEWS DD/CERN  
C  
C CHANGES FROM 3.03  
C NEW ENTRY POINT IOINFO ADDED. THIS ROUTINE RETURNS DD CARD  
C INFORMATION IN A FORM SUITABLE FOR A SUBSEQUENT CALL TO IODD.  
C VERSION FLAG NOTMVS ADDED TO IOXOPN AND IOXCLS AND CHANGED FROM  
C NOSVC99 IN IOXALOC AND IOXALOD. THIS VERSION SHOULD ASSEMBLE ON MOST  
C NON-MVS SYSTEMS ALLOWING THOSE WITHOUT DYNAMIC ALLOCATION (SVC 99)  
C TO USE IODD FOR TAPES ONLY.  
C

PAM name= KERNCDC

C KERNCDC 2.00 820401 12.00 CERN KERNLIB FOR CDC  
C KERNEL LIBRARY MACHINE PAM FOR CDC MACHINES  
C CONTAINING THE PILOT PATCHES TO CREATE KERNLIB  
C AND CDC SPECIFIC ROUTINES, MAINLY IN MACHINE-LANGUAGE  
C

PAM name= KERNFOR

C KERNFOR 4.00 820401 12.00 CERN KERNLIB FORTRAN ROUTINES  
C KERNEL LIBRARY FORTRAN PAM. TO BE READ CONCATENATED  
C WITH THE MACHINE LANGUAGE PAMS CONTAINING THE PILOT  
C PATCHES TO CREATE KERNLIB (APART FROM THE NUM ROUTINES)  
C

PAM name= KERNIBM

C KERNIBM 2.00 820401 12.00 CERN KERNLIB FOR IBM  
C KERNEL LIBRARY MACHINE PAM FOR IBM MACHINES  
C CONTAINING THE PILOT PATCHES TO CREATE KERNLIB  
C AND IBM SPECIFIC ROUTINES, MAINLY IN MACHINE-LANGUAGE  
C

PAM name= KERNNUM

C KERNNUM 1.00 820401 12.00 CERN KERNLIB NUMERICAL ROUTINES  
C KERNEL LIBRARY NUMERICAL ROUTINES PAM. CONTAINS THE  
C IBM AND CDC ASSEMBLER AND GENERAL FORTRAN VERSIONS. MAY  
C BE PROCESSED INDEPENDENTLY OF THE OTHER KERNLIB PAMS.  
C

PAM name= LINTRA

LINTRA 01.00 800211 PRINCIPAL COMPONENTS PACKAGE  
AUTHORS R.BRUN M.HANSROUL J.KUBLER

PAM name= MGD3

C MGD3 1.00 811012 14.00 CERN PROGRAM MINI-GD3

C COPIED FROM IGRAPHICS.MGD3.PAM\MGD3.SRC ON 810805 VIA PREPROCESSOR 1.1

C

Comment UA1 MINI-GD3 NORD+VAX VERSION

C

PAM name= MINUIT

C MINUIT 1.02 811023 17.00 CERN PROGRAM LIBRARY D506

C FUNCTION MINIMISATION AND ERROR ANALYSIS. F.JAMES DD/CERN

C

PAM name= MUDIFI

MUDIFI 1.00 780411 MULTIDIMENSIONAL FIT PROGRAM

PAM name= POISCR

C POISCR 2.39 820119 16.30 CERN PROGRAM LIBRARY POISCR = T604

C SOLUTION OF POISSON OR LAPLACE EQUATION IN 2-DIMENSIONAL REGIONS

C NOTABLY THE MAGNETOSTATIC CASE (MAGNET DESIGN).

C C.ISELIN SPS/CERN, R.HOLSINGER NEW ENGLAND NUCLEAR

C

PAM name= POOL

C POOL 2.01 820401 10.00 CERN PHYSICS ALGORITHMS AND PROGRAMS POOL

C LAST UPDATE 01 APR 1982

C

PAM name= ZBOOK

C ZBOOK 2.04 820317 15.30 CERN PROGRAM LIBRARY ZBOOK = Q210

C DYNAMIC MEMORY MANAGEMENT SYSTEM.

C R.BRUN, F.CARENA, M.HANSROUL, J-C.LASSALLE, W.WOJCIK

C

C CHANGES FROM 2.01

C ZEPIN TIMING OPTIMIZED

C USING NEW FAST EPIO ROUTINES

C NEW ROUTINE ZBOOKT (RETURNS ZBOOK VERSION)

C

Harry Renshall

**2.3.6 POOL 2.01 820401 10.00 CERN PHYSICS ALGORITHMS AND PROGRAMS POOL**

LAST UPDATE 01 APR 1982

-----  
POOL UPDATED APR 82 WITH 102 ENTRIES PAM 2.01 OF 820401  
NEW ENTRIES:W1003A I1003 W1031 W1032 W1033 W1034  
I1001 INOUT BUG FIXED IN NORD-50/500 VERSION  
X1016 MOMCAL 18 MAR 75 REPLACED BY SINFIT 01 APR 82  
-----

ENTRY I1001. INOUT 28 FEB 78 I 999

A PACKAGE OF ROUTINES PROVIDING INTERCHANGE POSSIBILITIES FOR BINARY DATA ON TAPE. DATA ARE BLOCKED AND EACH BLOCK IDENTIFIED. MIXING OF INTEGERS/REAL NUMBERS INSIDE BLOCKS IS NOT FORESEEN. THE TAPE FORMAT IS TOTALLY MACHINE - INDEPENDENT.

THE PACKAGE RUNS ON CDC 6000/7600, IBM/370, NORD-10, NORD-50 AND NORD-500.

UPDATED 01 APR 82 BUG FIXED IN NORD-50/500 CODE.

DOCUMENTATION = COMPUTER-INDEPENDENT TAPE FORMAT AND READ/WRITE PACKAGE. ELAS NO 93 F.VERKERK,T.R.WILLITS CERN/EP/DHR 78-2

PROGRAM ON CDC PAM FILE = PROINOUTPAM, ID = PROGLIB

IBM PAM FILE = CR.PUB.PAM.PRO.INOUT

ORIGIN = F.VERKERK '78, STATUS = USED.

ENTRY I1003. FQXSORT 01 APR 82 I 999

FQXSORT IS A COMPLETE CDC PROGRAM TO PERFORM A FAST SORT OF A HYDRA FQX EVENT FILE FOR INCREASING EVENT NUMBER WITHOUT READING THE EVENTS INTO THE HYDRA STORE.

DOCUMENTATION = COMPLETE PROGRAM. FOR DESCRIPTION OF HYDRA FQX FORMAT SEE HYDRA TOPICAL MANUAL FQ.

ORIGIN = J. ZOLL '82, STATUS = USED, CDC ONLY.

ENTRY W1003A. DRIFTV 01 APR 82 W 999

THIS IS AN EXTENDED VERSION OF W1003 (DRIFDT) INCLUDING A GRAPHICS INTERFACE USING THE CERN GD3 GRAPHICS PACKAGE (ROUTINES TV...). THE PROGRAM ALLOWS TO CALCULATE AND GRAPHICALLY DISPLAY THE POTENTIAL AND ELECTRIC FIELD IN EITHER SINGLE OR PERIODIC DRIFT CHAMBERS OR DRIFT TUBES WITH VARIOUS GAS MIXTURES. THE EXISTENCE OF GROUNDED PLANES AT A CERTAIN DISTANCE IS IMPLIED BUT THIS DISTANCE MAY BE SET TO INFINITY. AN EXAMPLE SET OF DATA CARDS IS TO BE FOUND AFTER THE FORTRAN SOURCE.

DOCUMENTATION = INLINE AND FOR W1003 NP/OM/75/102, F. BOURGEOIS.

ORIGIN = T. EHLERT

STATUS = FIELD PROVEN, CDC ONLY.

ENTRY W1031. MULTJ 01 APR 82 W 999

EVENT-SIMULATION PROGRAM FOR

E+E- ---> "GAMMA" ---> HADRONS

FINAL STATE OF QCD QUANTA GENERATED ACCORDING TO LLA (R.ODORICO, NUCL.PHYS. B172, 157 (1980)).

CONVERSION OF QUANTA INTO HADRONS PERFORMED BY THEIR INDEPENDENT FRAGMENTATION A LA FEYNMAN AND FIELD (P.MAZZANTI AND R.ODORICO,

PHYS.LETT 95B, 133 (1980), Z. PHYSIK C 7, 61 (1980)).  
FOR THE DEVELOPMENT OF THE FEYNMAN AND FIELD CASCADE THE FORTRAN  
PROGRAM OF T.SJOSTRAND (LUND PREPRINT LU TP 79-8 (1979)) IS USED  
FOR QUESTIONS ABOUT THIS PROGRAM CONTACT  
R.ODORICO, IST. FISICA, 40126 BOLOGNA, VIA IRNERIO 46, TEL. (051)  
26 09 91, TELEX 21 16 64 INFNBO I

DOCUMENTATION=

R.ODORICO, COMPUTER PHYSICS COMMUNICATIONS 24, 73 (1981).

PROGRAM ON CDC PAM FILE = PROMULTJPAM, ID = PROGLIB

IBM PAM FILE = CR.PUB.PAM.PRO.MULTJ

ORIGIN = R.ODORICO '81, STATUS = USED, CDC ONLY

ENTRY W1032.        HEVOL                    01 APR 82                    W 999

PROGRAM FOR THE CALCULATION OF THE QCD EVOLUTION OF STRUCTURE  
FUNCTIONS (NON-SINGLET AND SINGLET) IN THE LEADING LOG APPROXIMATION  
WITH SPECIAL CARE FOR MASS EFFECTS ASSOCIATED WITH HEAVY QUARK  
PRODUCTION .

FOR PROBLEMS ABOUT THIS PROGRAM CONTACT:

R.ODORICO, IST. FISICA, VIA IRNERIO 46, 40126-BOLOGNA,

TEL. (051) 26 09 91, TELEX 21 16 64 INFNBO I.

DOCUMENTATION BOLOGNA PREPRINT IFUB 81/9

ORIGIN = R.ODORICO, STATUS = USED, CDC ONLY

ENTRY W1033.        DALGEN                    01 APR 82                    W 999

ROUTINE TO GENERATE PI-0/ETA DALITZ DECAYS KINEMATICS  
PI-0 (ETA) --> GAMMA + E-PLUS + E-MINUS  
WITH WEIGHT = 1.

USES CERN LIBRARY ROUTINES.

DOCUMENTATION = INLINE

ORIGIN = G.VALENTI '82, STATUS = USED.

ENTRY W1034.        EPOS                    01 APR 82                    W 999

A PROGRAM FOR GENERATING HADRONIC FINAL STATES ARISING  
FROM ELECTRON-POSITRON ANNIHILATION.

DOCUMENTATION = CERN PROGRAM LIBRARY W1034

PROGRAM ON CDC PAM FILE = PROEPOSPAM, ID = PROGLIB

IBM PAM FILE = CR.PUB.PAM.PRO.EPOS

ORIGIN = L.ANGELINI, L.NITTI, M.PELICORO BARI

G.VALENTI BOLOGNA '82, STATUS = USED.

ENTRY X1016.        SINFIT                    01 APR 82                    X 999

THIS PACKAGE MAY BE INCORPORATED INTO A PROGRAM TO PERFORM THE  
LEAST-SQUARES FIT OF A TRACK IN A MAGNETIC FIELD TO A SET OF MEASURE-  
MENTS OBTAINED FROM MEASURING PLANES. THE PLANES SHOULD BE NORMAL TO  
ANY ONE OF THE THREE AXES OF THE COORDINATE SYSTEM. THE WIRES OF THE  
PLANES MAY BE INCLINED. MULTIPLE SCATTERING AND ENERGY-LOSS ARE  
OPTIONALLY INCLUDED. THIS PACKAGE REPLACES MOMCAL THE PREVIOUS X1016.  
ROUTINES ARE IN ALPHABETIC ORDER. USER CALLABLE ROUTINES SINFIT.

DOCUMENTATION = THE IMPLEMENTATION OF A NEW METHOD FOR THE TREAT-  
MENT OF MULTIPLE SCATTERING IN PARTICLE DETECTORS,  
R.FRUEHWIRTH, DD/77/23.

ORIGIN = R.FRUEHWIRTH, M.METCALF, M.REGLER, STATUS= FIELD PROVEN.

### 2.3.7 CERN LIBRARY PAM-FILE REORGANISATION

As announced in the last CNL the subroutine collection PAM (previously identified as 'CERN') has now been reorganised into smaller PAM-files. This is the last step in the restructuring of the CERN library before the creation of the new FORTRAN 77 binary libraries which should be announced in the next CNL.

The single PAM-file 'CERN' has become 5 PAM-files, namely:

- KERNCDC - the CDC PAM of the KERNel LIBrary
- KERNIBM - the IBM PAM of the KERNel LIBrary
- KERNFOR - the FORTRAN PAM of the KERNel LIBrary
- KERNNUM - the numerical routines of the KERNel LIBrary
- GEN - the routines of the GENeral LIBrary

No particular source version of a routine appears more than once in the above files. The FORTRAN routines are, as far as possible, compatible (or flagged) between FORTRAN 66 and 77 but testing with FORTRAN 77 is not yet completed and no guarantees can be given. These PAM-files are now those used for the maintenance of the existing FORTRAN 66 binary library structure.

A consequence of this splitting is that it will no longer be possible to offer a relatively easy access to the source of individual routines (regardless of the current absence of documentation as to what is where). The PAM-file 'CERN', which is pointed to by the existing documentation, is now frozen at level 75.00 but will not be deleted without further warning. Users who really need access to the latest version of a routine should search the PAM-files themselves or may contact me (x4951).

Note that KERNel PAM-files for machines other than IBM and CDC are not yet ready.

A consequence of the preparation for FORTRAN 77 is that maintenance of the existing FORTRAN 66 binary libraries will drop to a much lower level. It is not planned to offer the new library structure in the FORTRAN 66 language. This could be done if there is sufficient user interest, however, the creation and development of the FORTRAN 77 libraries has, and will continue to have, the higher priority.

Harry Renshall

### 3. COMPUTER CENTRE PERFORMANCE

#### 3.1 IBM SYSTEM

The beginning of new year saw a continuation of the poor general performance of the IBM machines that we had seen at the end of 1981, with very low availability figures due mainly to hardware failures which took some time to track down. Once this was fixed, however, things began to look up and the month of February was particularly good with only one major down period of 2 hours due to the CERN power supply.

Availability figures for the "A" Service were :

For Scheduled UP time -	January	98.8 %	February	99.6 %
For Powered on time -	January	97.2 %	February	98.8 %

The measures taken to improve throughput during peak user sessions also began to take effect during February and we saw less of the mid-morning/mid-afternoon bottlenecks. The first delivery of 3350 disk spindles will arrive at the beginning of April so this should improve the I/O situation even further.

The number of jobs run during this period went down to an average of 19258 per week while the number of User CPU hours actually went up to an average of 324 Hours per week with a record figure of 408.6 hours in the first week of March.

D. Underhill

#### 3.2 CDC SYSTEM

Except for the first week of the period (straight after the 2-weeks Christmas shutdown power off) these first 2 months of 1982 were excellent as far as CDC systems stability was concerned. Average MTBI (44.7 hours) and availability (98.6 %) figures for the combined MFA/MFZ system are figures never reached before for 2 consecutive months. The 7600, rather low in workload at the start of the year, ran weekly 10979 jobs for 110.1 hours of user CP time. Except for the last day of the period when an MFA Rios multiplexor eventually put the system down, the Cyber 170-720 had no interrupt at all due to hardware, neither mainframe or peripherals.

Throughout these 8 weeks, the MFB/Cyber 170-730 system ran with an availability of 99.3 % and an MTBI of 71.8 hours. FMD disk subsystem

2 controllers and 2 units (4 spindles) were successfully configured on MFB on February 6, together with a split of the filebase in 3 smaller sets. There was no problem during the whole re-configuration exercise.

J.C. Juvet



#### 4. WRITEUPS

The WYLBUR command WRITEUP gives users access to documentation on their terminal, as follows

- The command 'WRITEUP HELP' will help you to find a writeup via keywords.
- The command 'WRITEUP INDEX' or 'WRITEUP,I' will show you the index on the screen of your terminal.
- The command 'WRITEUP MODIFICATIONS' or 'WRITEUP MODS' will tell you the changes in the documentation during the last three months.
- The command 'WRITEUP,writeupname' allows you either to get the writeup or information on how to obtain it.

#### WRITEUP MODIFICATIONS DURING LAST 3 MONTHS

##### Added:

29.01.82 CLASSES List of available classes on INDEX  
01.03.82 CUFOMREF reference manual (definition of the object module format)

##### Changed:

15.02.82 INTMAN New version  
18.02.82 CUFOM New version  
18.02.82 TMS9900 New version  
16.03.82 PULIB New version

## 5. VOX POPULI

### What is Vox Populi for?

All complaints, suggestions or problems sent in to the PEO on the form which is the last page of this Newsletter will be answered as quickly as possible (if not obscene or just a personal attack!) in these Vox Populi pages. Please note that your name will not be printed - only that of the person replying. You can send the form anonymously if you wish, but then you have to wait until the next Newsletter appears to receive an answer.

#### Program Enquiry Office

---

I'm new at CERN and I would like to comment that "WYLBUR" does not seem to be a really good editor even if it appears that most CERN users are happy with it. I assume it is due to the fact that they never have used a good "program development" and not "text oriented" editor.

In particular, one of the most frustrating features of WYLBUR is the manner by which one deletes a line; contrary to most editors, entering a line number deletes that line after displaying it and does not simply display the requested line. It would be a great improvement if that feature could be suppressed, with some switch set in the logon EXEC file for instance.

I don't want to comment on your remarks about WYLBUR in general (matter of taste and experience). As far as the "frustrating feature is concerned" you have only to SET MODE NOSHORT (documented via the SYNTAX command) and WYLBUR prompts you each time you type a line number instead of deleting or replacing the line.

**Bernd Pollermann**

\*\*\*\*\*

Is it intended to keep up to date "writeup terminal" ?

YES

**Lucien Gourdiolle**

\*\*\*\*\*

Laser printer printout class W can, class F cannot be put in a file. Paper width of class F (DIN A4) is not a multiple of the transport-hole-distance. But if the papersize would be slightly wider than DIN A4 all the transport-holes (used for filing-purposes) would be superposed. DIN A4 format would be obtained by trimming the edges, like class W. This is easier anyway than ripping the pages apart (sometimes even in the middle). Wouldn't that be nice?

It would be truly wonderful since our laser printer is physically incapable of printing the 8.5 inch paper you suggest! The next size up on A4 being 10 inches, there would be quite a lot of waste to cut off. Alternatively, if we changed the printer to the American model, which can print 8.5 inches, it could no longer print the 12 inch paper used for the other A4, sysout W class.

In any case F class outputs CAN be put in normal A4 folders like any other normal A4 paper (try CERN stores 54.22.08.086.3). Why do you want to perpetuate the weird folders invented because computers COULDN'T print A4? (Where did you get any the right size for class F anyway since we didn't supply them?)

Now I will agree that punching holes 8 cm apart for normal folders is a problem if you have fat outputs. The problem has been partly solved by the provision of a special drill in the computer centre user area. On the other hand, the solution you suggest of trimming the edges is an even worse problem for large outputs, requiring you to go to the guillotine in the central printing shop. Personally I use microfiche for large reference outputs since they are much easier to handle and store.

You have to face it, life is full of compromises.

Chris Jones

\*\*\*\*\*

When waiting in the index queue to use the IBM, would it possible to get a status report more frequently, say every minute? At present there is no real indication of one's position, and there is often no message at all between

"QUEUED AT POSITION 00015"

and

"READY ?"

ten minutes later, by which time the poor user has probably died of boredom.

The queuing facility and hence the update messages are only available on the model 4 PACXs that is to say

PACX 0 Bld 513

PACX 1 Bld 513

PACX 4 Bld 013

PACX 7 Bld 871

Of these PACXs only two (PACX 0 & PACX 4) at the moment contain the revision of GANDALF software necessary to modify the time interval between messages. It is planned to put rev C software into the other two as soon as possible. On the two PACXs over which we have control of this message, the time between messages has been shortened to one minute. We hope this will help overcome your boredom.

Herbert Brodmann

\*\*\*\*\*

Is it possible to add to the LP command, some sort of HELP, especially for the destinations which are available (for people like me who keep forgetting that 38 is the Laser printer) and a way to leave LP in a controlled abort since esc A leaves a ZZZ... file. I propose END as response to banner page.  
P.S. The Intercom manuals are not up-to-date in many terminal clusters.

LP has been modified to give a list of valid destinations on request and will no longer leave the file ZZPROC lying around if you abort with an esc A.  
P.S. Up-to-date versions were put in all RIOS shortly before Christmas.

Judith Richards

\*\*\*\*\*

```
JOB 6214 QZ0ZZ575 PRT LOCAL (W,32L,**) ANY
q out
OUT R=LOCAL      F=STD. C=**** T=**** W= (NONE) CLASS F=30,L= 8,W=**
CLASS Z=17
```

I don't think the above messages are as informative as they could be! Why is the queue position limited to 2 digits for jobs in an output queue, whereas it can be at least 3 digits for jobs in the execute queues? Could an extra digit be provided?

I agree that it is a bit stupid to only have two characters to display the position in the output queue but it's not as trivial as you might think to change it. Since, in any case the queue position is fairly meaningless in the case of the laser printer there are no plans to correct the situation for the time being. The laser printer doesn't print jobs in the order they are in the queue. In order to optimize printer throughput it gathers together all jobs having similar print characteristics and prints those before moving on to the next batch. Thus a position over 99 simply tells you that there is a long queue. If you are lucky you may get in one of the first batches to be printed; on the other hand...

Judith Richards

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I recently submitted a class S job via WYLBUR, and found it went to queue position 64. The beauty of this number incited me to inspect the queue, upon which I found that the first 63 jobs were all HOLD (so that in fact I was first: an unexpected blessing). Is this a record? Can I submit it to the Guinness Book of Records?

NO! If you had submitted a class T job around the same time you would have gone into position 165 ! and most of these were in HOLD also. But see the report of the Computer Users Meeting in section 1 for more on this subject.

Judith Richards

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It would be convenient if WYLBUR commands like PURGE, PRINT and FETCH could operate on jobs other than those belonging to the logged-in user. (assuming of course that he can supply the appropriate keyword). This would, for example, allow users to get rid of their fetch files directly from the user area terminal without logging in.

The request is perfectly legitimate and will be put on the list of future developments: WYLBUR will prompt for the keyword of the user before giving access to his jobs. However, what should be done if the user has not defined a keyword - which seems to be the standard way of working? Should we permit free access to the files of those users or should we refuse it? It's a controversial point that needs an answer from the users representatives or from the users themselves through Voxpop for example.

Antonio Maver

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I strongly protest against the possible suppression of the colour pen option on the pen plotter. Although I'm not a very heavy user of plotting facilities. I find them very convenient: Napoleon convinced me, a long time ago that "Un petit croquis vaut mieux qu'un grand discours", which means that a plotted curve is much better than long printouts. I'm sorry to say that starting from the golden days, some 10 years ago, I've seen a continuous degradation of the plotting facilities at CERN, which can be summed up in the following steps:

- Suppression of MCARD and MFILM, which though black and white only was very convenient for filing lots of plotted outputs, or even for producing slides.
- Increase in turnaround time from a few hours to 2 days at least now (is it due to CERNET?)
- Change of default pens from ink to ball point. I now have to change my glasses to see the plotted curve (when it has been plotted!) I fear the next step
- Colour option suppression, which may be followed by:
- Suppression of plotter. We will be back to late 50's with PRPLOT only.
- Suppression of printed output.

Are you discouraging people from computing or are you not convinced of the usefulness of our work?

I feel that you have misunderstood the actual situation for plot output at CERN, and I hope you will find our improvement plan will help you. Firstly, let me remark on your several points:

- MCARD and MFILM were GD3 interpreters specifically designed for the Ferranti EP100 film/aperture card machine. Basically, this device was past the end of its expected lifetime before its removal to the building 513 Computer centre. In spite of a lot of work on the machine by CERN and Ferranti (and considerable expense) it could not be persuaded to offer anything like reliable service, and was withdrawn.
- I cannot agree that plot turnaround time has increased from 'a few hours' to '2 days at least'. The present two pen plotters certainly are dealing with far more work than in previous years, and less staff are available to oversee the work. Also, delivery services have had to be curtailed. However, the machines are (almost) invariably idle at 0600 hrs each day and I think that plot turnaround time is perhaps 'a few hours', but NOT '2 days at least'. Users should also remember that in general, DEFAULT option jobs are dealt with fastest. Special options (wide paper, squared paper, ink pens of uncommon size) require operator intervention and will wait, normally, until other simpler work is finished.
- The ball point default seems quite justifiable in view of the 15,000 Frs expenditure per year on pens before this change. Of the 720 jobs run last week, only 220 asked for ink pens and of those, a majority were clearly not 'final' jobs requiring ink quality. You are, however, at liberty to specify ink pens, should you need them. See the GD3 User Guide, etc. for details of how to do this.

- You are correct in postulating that the 'colour' options might be suppressed. This is at present under active consideration, since very few people cannot make do without this option (read the next section before registering another complaint!). Our new plotting facilities will make the pen plotters look very expensive in money and manpower, for little positive benefit.
- There is absolutely NO intention to regress in our general plotting capability. I agree that to use nothing but PRPLOT would be to go back not just to the 50's but to become quite prehistoric.
- I think this point is made to emphasise your frustration with the apparent lack of progress in the graphic output field at CERN. However, I would ask you not to despair totally: the present plan is:

Install an 8236F and V20F Versatec electrostatic printer/plotter during March/April 82. These machines offer A0 (36 inch) and A4 (11 inch) paper widths, and can output to normal electrographic paper (same quality as normal plotting paper) or translucent electrographic paper. The 8236F is already here, offering a restricted 'test' service to some users with very complex plots. Both these plotters are capable of plotting on mylar (transparent plastic).

They will be connected on-line to the IBM, via a controller which can support up to four devices, and access to them will be provided for GD3 and PLOT-10/TCS/AGII from the CDC and IBM hosts. Calcomp users will also be offered CDC (both MFZ and front-end) and IBM access, as the Versatec software is a superset of the Calcomp routines. The speed of the machines is expected to be at least 30 times that of the pen plotters, and the quality equivalent or better. Line widths of 1-5 times 1/200 inch (the x- and y- resolution of both devices) are standard. The only important drawback is, as you predict, the lack of colour output. However, shading of zones is offered as standard (gray scale) and this (together with 5 line widths as standard) can replace the use of colour in most user applications.

Lastly, we do not intend to discourage people from computing or plotting, and have no intention to belittle your work (or anyone else's). After all, if we can't provide the services needed (within the limits of the budget we are given) it is ourselves that will be suppressed!

C.Curran

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Despite the well chosen date the Computer Users Meeting was well attended. Surely this could be remedied! Next meeting Easter Sunday or Christmas Day perhaps.

As you imply, the Computer Users meeting was indeed poorly attended. Unfortunately, the date chosen was during the Geneva Schools holiday week but the CERN calendar from New Year to Easter is very busy with meetings and holidays. However, when we checked the computer use statistics for this period we found no significant difference in jobs run and WYLBUR terminal use was limited by the number of available lines. Our conclusion is that most of the working people at CERN were present and none of them had complaints to bring forward at the users meeting.

Luc Pape

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Once again the CDC died on me! How is it that these machines fail so often? They are down for maintenance two nights a week plus some time for disk upgrades etc. I think they should be more stable than they are. What do you think?

Although I agree with your concern, I would like to warn you against generalization. This particular week of March 15 ( I suppose this is the one which you are referring to) was bad due to various channel and Hewlett-Packard Coupler hardware problems. However, if one forgets the "after Christmas shutdown effect" usually experienced yearly during the first week of January, MFA and MFB went down 9 times in 8 weeks. This is slightly more than 0.5 breakdown per week per machine. Moreover, average availability breakdowns weren't that long. Do they really fail that often?

CDC channel problems and CERN-made interface problems to non-CDC equipment on these channels are more difficult to track down than the standard central memory problem. We sometimes take more than 1 breakdown to isolate the fault in the chain. This having been said, we apologize for the inconvenience experienced by most CDC users during that bad week. We believe these problems are now resolved and stability is back to its expected level.

J.-Claude Juvet

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Date-     /     /82  
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Machine- \_\_\_\_\_

System- \_\_\_\_\_

(If you wish)

Name-

Division-

Tel.-



Please fill in the questionnaire and/or describe your problem, or write your suggestion on the other side. Then just fold the form and drop it into any mailbox.

To- Program Enquiry Office,  
Building 513 (DD),  
CERN.

# VOX POPULI

-----fold here-----

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