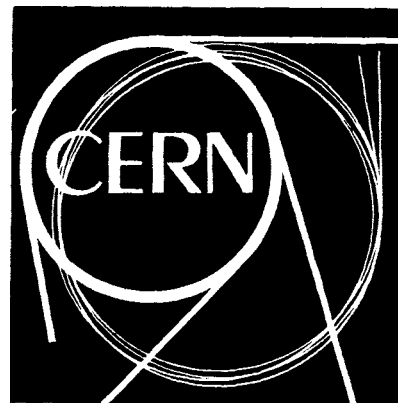


CERN COMPUTER NEWSLETTER

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Switzerland

MACHINE PERFORMANCE

7600 Performance and Availability

Most users work with the 7600 via the 6500 front end and we show here some performance graphs appropriate to them.

1. Definitions

Figure 1 shows the number of hours per week that the 7600/6500 combination is scheduled for user production (graph A), the number of hours that are in practice successfully achieved (graph B) and the number of hours of user work per week obtained by adding the CP time of all 7600 user jobs. The second figure displays essentially the same basic information but expressed as various percentages. Graph D shows achieved hours as a percentage of scheduled hours while graph E gives a form of CP efficiency or usage being 7600 user job hours divided by achieved production hours. Graph F expresses the unavailability of the 7600/6500 combination as a fraction of $7 \times 24 = 168$ hours per week. Both figures are plotted for the whole of 1974 to date.

2. Explanation and Comment

The definition of scheduled hours needs a little amplification. Why do the scheduled hours change weekly while the published machine schedule stays constant for months? The answer briefly is that not all scheduled systems time is taken and that, infrequently, extra maintenance is necessarily scheduled. By and large this year the actual scheduled hours per week have been greater than the published schedule (throughout most of 1974, 139.5 hours have been scheduled for user production).

The achieved production graph demonstrates how well the computer centre has met its intended schedule and hence the hardware and software engineers and operations are interested in graph D which shows them, in global form, their success rate. The Summer of 1974 saw the best sustained performance in the history of our 7600 and was followed by a slightly worse period of disk and other problems not forgetting a major Geneva power failure.

The availability percentage of interest to the experimental physicist user is graph F (which is plotted as unavailability!). The middle of the year showed a substantial decrease in unavailability compared with 1973 or the beginning of 1974. The above mentioned problems caused it to rise again in Autumn but the week beginning 28th October produced the highest user availability to date following the recent schedule change (scheduled availability increased from 83 to 89% of 168 hours) and a week of exceptional hardware and software performance.

Graph B shows clearly the peak week before the London Physics conference where we passed 100 hours of user work in one week. It also shows a certain correlation between available hours and work done. Figure 3 is more interesting allowing us to see how this same graphs look since the introduction of the 7600 in March 1972. Users are invited to make their own prediction of the development of this graph.

C. Jones

Fig. 1

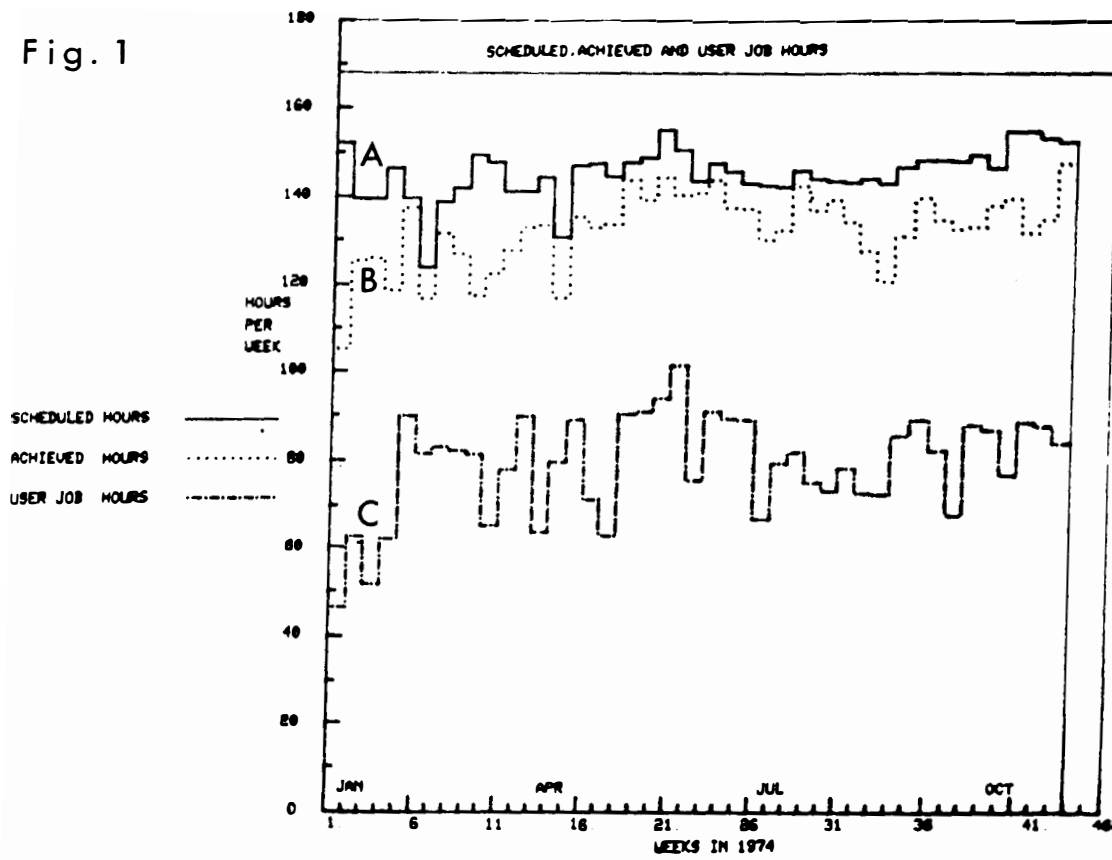


Fig. 2

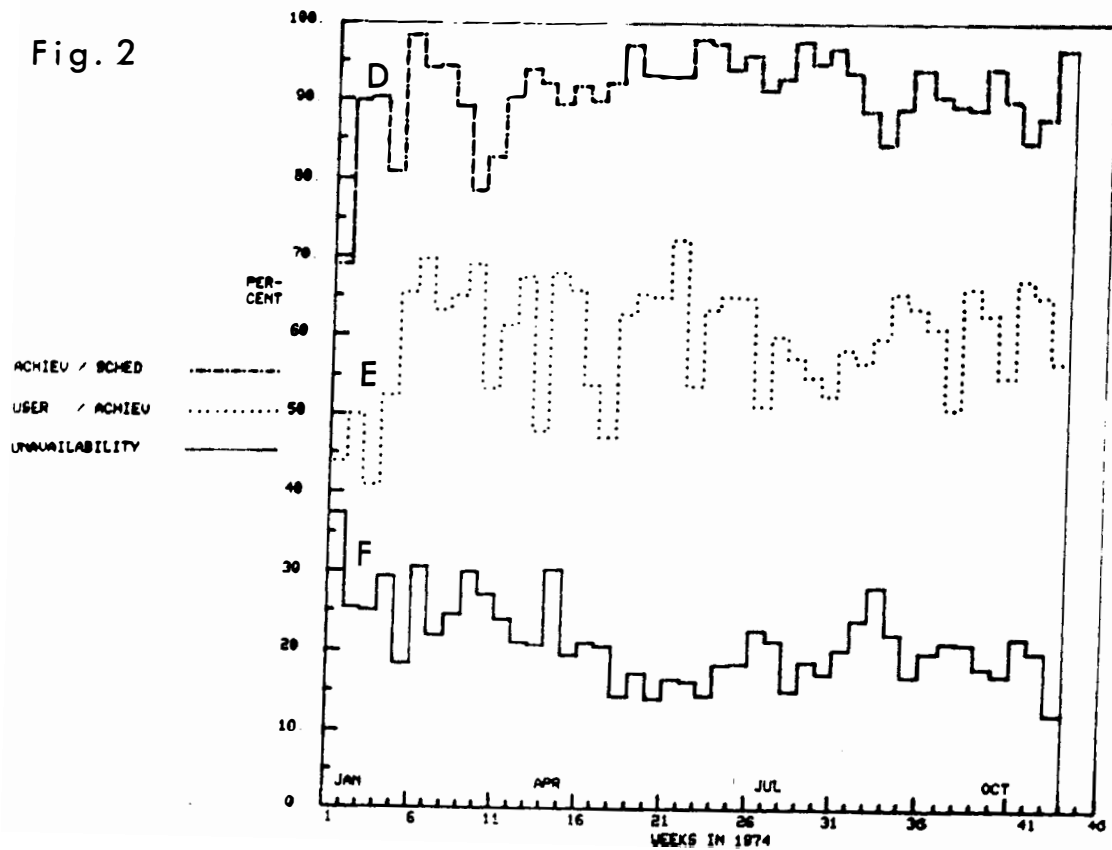
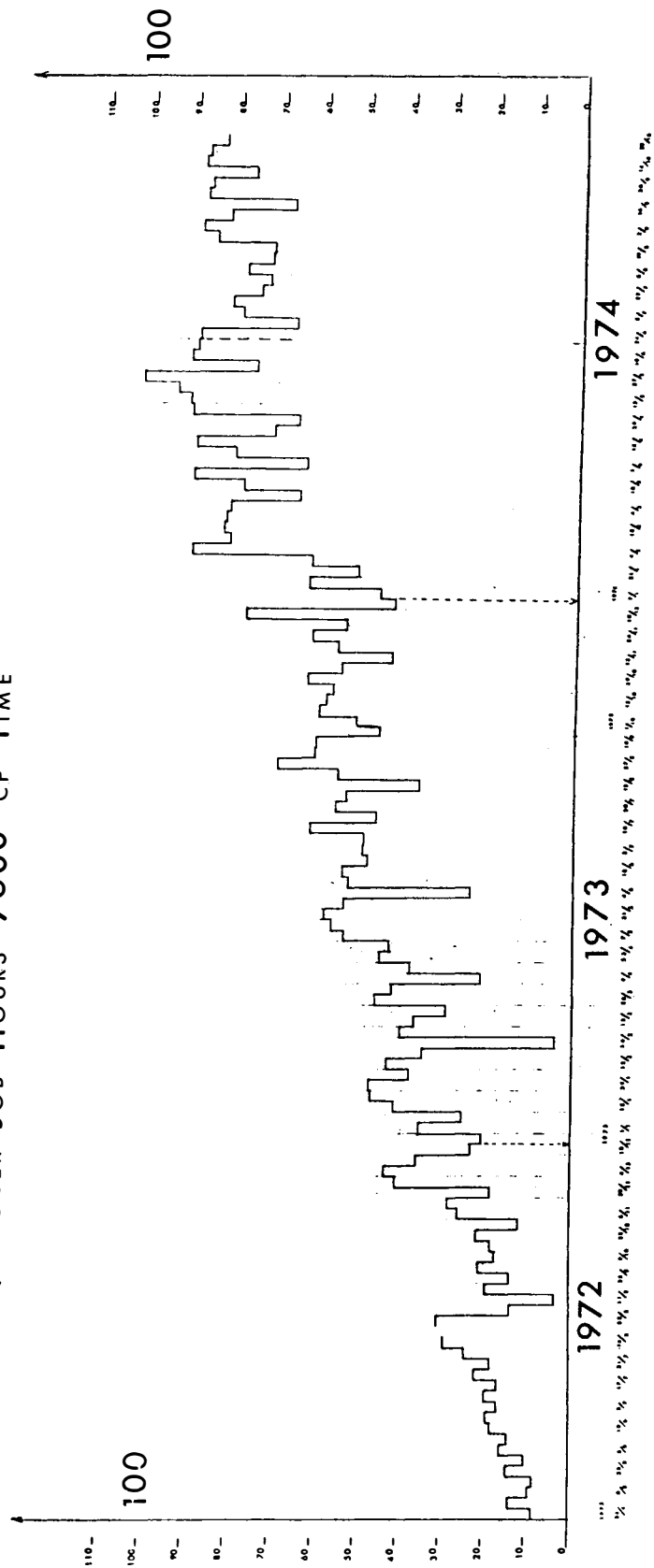


FIGURE 3. USER JOB HOURS 7600 CP TIME



SCHEDULES

Machine Schedule and Priorities of Service

Since the present computer timetables have recently been published in several separate documents a short summary to collect together the essential information is appropriate.

1. CDC SCOPE

At present the 7600 is linked to two front-end computers, the 6500 and the 6400. Basically the 6500 is connected to all RIOS, local user I/O equipment, and dial-up INTERCOM teletypes. All tape staging is performed by the 6500. The 6400 is used almost exclusively to provide an INTERCOM service for some 20 fast (9600 baud) display terminals. (The number of terminals will be steadily increased.)

Thus the main service is provided by the 7600 and 6500 and this is scheduled to have 3 interruptions each week during which systems development and preventative maintenance are contiguous. This is purposely done in order to minimize the number of interruptions and hence lost run-down/run-up time. The three breaks of user service (including run-down/run-up time) are thus:

TUESDAY and THURSDAY evenings	19.00 to 01.00
SATURDAY morning	07.00 to 13.00

This recent reduction in scheduled down time has reduced the scheduled unavailability from 17% to 11% of the 168 hour week.

The 6400 is ALSO taken during these 3 breaks. On top of the latter it is unavailable to the user:

EACH MORNING	07.00 to 10.00
SUNDAY MORNING	06.30 to 13.00

This is in order to provide 6000 systems development time and permanent file base maintenance. The 6400 has therefore a scheduled availability of 76% of 168 hours a week.

2. CERN SCOPE

The CERN SCOPE and associated FOCUS service are scheduled around the PS and ISR physics runs. Hence the priorities and schedules are different inside and outside PS/ISR runs.

During accelerator runs the intention is to keep both the above services totally available (in reality > 95% is achieved) and this implies the use of the 6400 as a back-up to the 6600 when necessary.

However, outside accelerator runs the 6600 has a scheduled 5 hours of preventative maintenance which is NOT backed-up by the 6400.

Hence in return for a special service during physics runs, CERN SCOPE users are requested to be tolerant of a certain downtime and a certain freedom to take the 6600 for preventative maintenance at whatever time it is convenient for operations and CDC engineers. It is difficult to arrange a rigid schedule and users are informed as far in advance as possible via the television screen.

The schedules of the 3100 and 3200 are similarly flexible and FOCUS users are informed in advance via FOCUS notes.

3. When things go wrong

If the 6500 goes down the 6400 will always be taken to replace it if the time scales involved make sense. Similarly the 6400 may also be taken to do emergency work on a critical 6500 peripheral if necessary.

If the 6600 goes down during PS/ISR runs the 6400 will always be taken for CERN SCOPE. Outside physics runs the 6400 will NOT be taken to back CERN SCOPE.

If the 7600 goes down

Chris Jones
J. Ferguson

7638 FILES

FIND and *P (PROduction) files on the 7638 disks

In order to maintain, as far as possible, a constant and sufficiently large space on the 7638 disks for FIND files, the *P (PROduction) files are now being rigidly controlled (in an off-line manner) at the level recommended by CUAC. The resultant space for FIND files is now > 40% of the 3 disks and the duration of stay of such files has substantially increased in recent weeks.

Nevertheless there are always many tapes on the FIND files which are used only once and users are requested either to STAGE such tapes directly or to purge the FIND files following successful execution, in order to allow the maximum space for users truly wanting to FIND a tape file many times a day.

*P files are budgetted 7% for NP, 4% for TC, 4% for DD and other divisions making a total of 15% of 3 disks (or a space equivalent to 8 9-track 1600 density tapes). Their intended use is the collection of fractions of output tape for users with large production programs, hence avoiding many merge jobs or large amounts of CP time lost by unsuccessful stage out. *P space is allocated by the Computer Coordinator, Chris Jones, beep 8-947.

C. Jones

6000 FILES

6500 Permanent File Allocations and AUDIT

1. Allocation

The present allocations of 6500 Permanent Files are as listed in Table 1. The total space allocated is very close to the full capacity of the 8 844 disks on which the permanent files reside. At present an increase of allocations over 8 packs would result in a decrease of availability of the user service since special time would have to be taken to do the weekly permanent file maintenance which can at present be performed during system development by switching 8 packs and one controller to the 6400.

2. AUDIT

There have been several recent problems when the file base has filled up without any divisional AUDIT being over its allocation. This happens because AUDIT does not inform the user of his exact disk usage. The minimum unit of disk space is RB = 56 PRU's = 56 x 64 words. In an extreme example 100 files, each of 1 word, occupy 5,600 PRU's where the user is told he has 100 PRU's. Hence AUDIT is being modified to produce the correct number of PRU's on its printed and binary outputs. Users should therefore not be surprised if their apparent disk usage increases suddenly. Divisional representatives who have the responsibility to control divisional usage will be informed separately of the detailed consequences and the date of the change.

TABLE 1 - 6500 Permanent File Allocations

<u>Division</u>	<u>Contact Person</u>	<u>Present Allocations (KPRU's)</u>
CDC	B. Blair	20
DD including OP, SY, IN, PU, PR, CO, DE	H. Grote S. Santiago	300
DI	M. Hoefert	33
FI	K. Kölbig	5
ISR	B. Zotter	40
MPS	W. Kubizschta	50
MSC	P. Skarek	50
NP	L. Griffiths	350
PE	M. Baboulaz	32
SB	A. Lecomte	5
SPS	L. Evans	90
TC	E. Pagiola	350
TH	F. Schrempp	40
ESO	R. Wilson	10
GV	P. Levrat	20
		<u>1395 KPRU's</u>

C. Jones

GD3 GRAPHICS PACKAGE

1. Additional Documentation

GD3 is a subroutine package available on the CERN central computers for producing graphical output. The philosophy of the GD3 system allows a user to direct his output to one of a number of graphic output devices. At present GD3 interpreters exist for the line printer, paper plotter, microfilm plotter (CERN SCOPE only), Tektronix Display Terminals and the ARGUS display (CERN SCOPE).

GD3 is part of the CERN program library and a detailed description of the program is contained in the program's long write-up (J510). However, it has been felt for a long time that, though this write-up is useful for an experienced computer user, it can be quite hard going for a relative beginner.

A GD3 USER GUIDE has therefore been written, which will help any new GD3 user to get started quickly, and it should also be of help to other users, since it describes what facilities are available under each of the different systems; i.e. SCOPE 2.0 (7600), SCOPE 3.4 (front-end 6000's) and CERN SCOPE (6600). The Guide has been divided into two parts:

- a) Part I : "Beginner's Guide to GD3"
- b) Part II : "How to use GD3 at CERN"

Copies of these User Guides are available from Mike Howie - DD (2993) or the PEO. Computer listings of these guides, without the figures, can also be obtained by submitting the following 6500 jobs:

For Part I: job,CP60.
ACCOUNT,username,div,accnum.
ATTACH,GUIDE,GD3USERGUIDE1,ID=C0500PEO.
COPY,GUIDE,OUTPUT
e-o-f

For Part II: job,CP60.
ACCOUNT,username,div,accnum.
ATTACH,GUIDE,GD3USERGUIDE2,ID=C0500PEO.
COPY,GUIDE,OUTPUT.
e-o-f

2. Use of GD3 on the 7600

The GD3 routines and the interpreters, PRPLOT and CPPLLOT are now all stored on the Program Library which has to be declared by means of the control cards

```
ATTACH,LIB,7600LIBRARY,ID=PROGLIB.  
LIBRARY,LIB.
```

It is no longer necessary to attach special files in order to execute PRPLOT and CPPLLOT.

- a) PRPLOT Interpreter. To obtain a printer plot of a display file one simply executes the control card statement

```
PRPLOT(DFILE)
```

where DFILE is the name of the display file. It is important to remember that the program reads one optional data card from the file INPUT (see Program

Library long write-up J513 for the format of this card). When the user does not wish to supply a data card, he must ensure that the program reads an empty record instead, i.e. an end-of-record or an end-of-file is read.

- b) CPPLOT Interpreter. To obtain a higher resolution plot of the display file DFILE on a paper plotter, one executes the control card statement

CPPLOT(DFILE)

This interpreter now also reads an optional data card from the file INPUT. If the data card has the character 'P' punched in column 1, all point plotting will be done in fine mode (i.e. just a pen down/pen up procedure). Any other data card or else no data card at all (i.e. an empty record) indicates that point plotting should be performed as before, which is done, in fact, by drawing a very small cross.

M. Howie

A NEW BARB IS BORN

Its name is 6400BARBASCII.

It is catalogued with ID=PROGLIB.

It works only on the CDC 6500.

The new options of this program are underlining upper and lower case, left and right justification.

To have the results of this program, use of a special printer (with ASCII characters) is required.

The default file names are:

INPUT, OUTPUT, OUTPUT, DIAGS, TITLES
 (text) (table
 of
 contents)

job,CP60.
ACCOUNT...
REQUEST,tape,*AYol.
ATTACH,BARB,6400BARBASCII,ID=PROGLIB.
BART,xx,yy.
REWIND,xx,yy.
COPYBR,yy,tape. (table of contents)
COPYBF,xx,tape. (text)
DISPOSE,tape,PE.
*eor
 input of BARB
*eof

For further details, ask Geneviève Roux (PEO).

G. Roux - P.E.O.

FOCUS EDITOR

A version of the FOCUS text editor is now available under INTERCOM (on both 6400 and 6500). It may be attached by

ATTACH,FEDIT
or
FETCH,FEDIT,ID=PUBLIC

It may then be used to edit record type Z format files by a call of the form

FEDIT,file1,file2,max characters in line.

where the default is

FEDIT,FEDIT1,FEDIT2,135

and for interactive terminal input/output connected files TTXIN and TTXOUT are used. It is in fact a superset of the FOCUS Editor in that there are some extra subcommands not available in FOCUS.

For a description of the FOCUS Editor see either INSTANT FOCUS or FOCUS Project Note 25 (available from Mme. C. Ball - DD).

In actual usage there are a number of minor restrictions:

- a) If file1 is an attached permanent file then a new pass (P) subcommand is not possible.
- b) In multiline input (M) mode it is impossible to insert blank lines, since such a line (one or more blanks followed by carriage return) terminates the multiline input.
- c) The editor will almost certainly fail on non-Z format files (e.g. UPDATE source files).
- d) To counteract the CDC SCOPE convention whereby each line in a Z-type record is blank filled to the 12-bit zero byte at the end of a CM word every line from the input file has trailing blanks deleted before editing starts on the line.

There are also a number of minor differences from FOCUS:

- a) The FOCUS character ":" is replaced by "%" and "^" by "·".
- b) The truncation of a line which is too long gives a warning message but does not (as in FOCUS) stop execution.
- c) A syntax error in a set of subcommands causes a message of the form
ERROR AT CHARACTER n
where n indicates the character position at which the syntax error was found.
- d) Even after PQ file 2 is not left empty but contains the same as file1, since the editor copies back the file from file2 to file1 rather than simple renaming files.
- e) Multiline input is terminated by a line containing only blanks.
- f) There is no option to switch to U mode after 10 consecutive lines of output.
- g) Messages are not exactly the same as in FOCUS.

Additional facilities not found in the FOCUS editor are:

- a) Messages EOF1 n
 EOF2 n

where n is the number of lines read from file1 or written to file2 respectively.

- b) Extra subcommands

F Move pointer to end of input line
H Hold text copied and skip to next input line
K(n) Copy n characters from input line to output line
W Write output line buffer only (do not advance input line)
X(n) Skip n characters of input line
Z Zero (clear) output line buffer.

- c) Extended Global Subcommands

The syntax for global subcommands is either

G<condition>(<loop>)<exit sequence>
or G<condition><sequence>

where <condition> is one of

E	}	as in FOCUS
T <separator><text><separator>		
L <separator><text><separator>		
<repeat count>		a number of times

<sequence> is a normal editing sequence not including G, M or Q.

<loop> is an editing sequence which may include G but not M or Q.

Nesting of globals is permitted to a depth of 8. I personally do not yet understand the possibilities therein, but there must be some.

Acknowledgement

The editor was written by a bit-twiddler at Brookhaven National Laboratory, to whom all complaints should be addressed in the first instance. Failing that I will be willing to deal with queries, bugs, etc.

J.M. Gerard

--- FORTRAN

The New FTN 4.1 Compiler

The new version of 7600 SCOPE 2.0 (cycle 69-5) was introduced on Monday November 11th, 1974.

Apart from some products having been upgraded to cycle 373, modifications to the system are mainly concerned with an attempt to save paper. These changes have been requested by the Computer Users Advisory Committee (CUAC). Savings, however, will materialize only if all users collaborate in the following ways:

1. The Microfiche facility, described as program J517 of the 7600 program library should be used whenever possible.
2. Users should list output on "save" files, which will be printed only in case of an error, as in the following example:

```
JOB.
ACCOUNT..
FTN,LR=SAVE.          .SOURCE LIST TO FILE SAVE
LDSET,MAP=B/SAVE.     .LOADING MAP TO FILE SAVE
LGO.                  .ONLY OUTPUT FOR SUCCESSFUL LGO
EXIT.                 .PRINT SAVE ONLY IF FAILURE
REWIND,SAVE.          .
COPY,SAVE,OUTPUT.     .COPY FILE SAVE TO OUTPUT
E-O-R (7-8-9)
    FORTRAN PROGRAM
E-O-F (6-7-8-9)
```

The FTN 4.1 system, cycle 373, is an improved version of FTN 2.0. It is common to both the 7600 and 6000 series computers, and there are plans to introduce this system on the CERN 6000 series computers. It will save up to 30% in both compilation and execution time. Extensions to ANSI FORTRAN, such as the IMPLICIT statement and Hollerith strings in various contexts are accepted. Also, DEBUG information is correctly processed.

Documentation may be found in:

FTN Reference Manual, Pub. No. 60305600, Revision D, and
FTN Debug Users Guide, Pub. No. 60329400, Revision B.

The following detailed description of the local modifications to FTN is merely a reprint of Computer Notice No. 726.

Corrective code (beyond cycle 373) has been added at CERN for the following errors:

- a) incorrect compilation of inner DO loops (PSR no. FCC0113),
- b) incorrect compilation of relational expansion involving the constant zero (PSR no. FC0165).

In addition, object code containing temporary stores and loads is now optimised (PSR no. FCC0109).

The following routines of the FORTRAN Common Library (FCL) contain local fixes: FORSYS=(set default MBL=5120), REWIND=(a REWIND after write EOF does not cause an additional EOF to be written), EXP (gets correct results for excessive values of |X|), AINT and DIM (correct register usage) and DATAN2 (correct result for DATAN2(1.,0.)).

The following local modifications have been introduced:

1. The default list options are now L=0, R=0. A few examples of FTN control cards, their equivalences in the old system and their meanings are listed below:

new	old	meaning
FTN.	FTN,L=0,R=0.	no listing, no symbolic reference map
FTN,L.	FTN,R=0.	source listing, no symbolic reference map
FTN,LR.	FTN.	source listing, symbolic reference map of type 1
FTN,OL,R=2.	FTN,OR.	source and object listing, symbolic reference map of type 2.

2. FTN ejects to the next page only when the listing of a new program unit starts. All other page ejects (e.g. to the first line of the symbolic reference map) take place only if there are less than 8 lines left, otherwise 4 blank lines are listed. (This is the effect of a COMPASS pseudo operation SPACE 2,4.) A new parameter on the FTN control card, BL, disables this feature.
3. NOLIST and LIST comment cards within a FORTRAN deck may be used to switch on or off the listing of source statements. They will be effective only if the list option L is selected on the FTN control card and hold until the end of the program unit.

Their format is:

```
C/      LIST          (5 blanks after C/)
           and
C/      NOLIST
```

The LIST card will appear on the listing, the NOLIST card will not.

4. The default execution time line limit has been reduced to 1000 (decimal). It may be overridden by the PL parameter on the FTN control card.
5. The default field length for a regular compilation (no debug) has been increased to 37677B. This should accommodate the default systems text in FORTRAN/COMPASS mixes. By means of the RFL control statement one may further increase the field length if required.

The following note on execution-time Input/Output is copied from CDC's PSR summaries.

Parts of the FORTRAN Common Library have been rewritten. In particular KODER/KRAKER has been completely rewritten to improve performance and to comply with new ANSI specifications.

Previously, all formatting operations went through an intermediate buffer containing one character per word: now the formatting is done directly. This method allows a significant speed increase, especially with A, R and long II format items. Formatted input/output is now significantly faster.

New features:

```
Ew.dEe and Ew.dDe (ANSI)
More than 150 characters per word
Variable formats V and =
LCM formats
Improved list directed input/output
Ow.z
Iw.z (ANSI)
+nX, -nX (ANSI)
```

There is a noticeable difference between the old and new input/output. Few of these items will affect correctly running programs.

1. Numeric output: Numbers too large for the designated field will result in all asterisks being printed instead of only one leading asterisk (ANSI).

2. Integer output: An X will not be produced. Eighteen digits can now be displayed instead of fifteen.
3. Floating output: R or I will be produced instead of RRRRR or IIIII for end cases.
4. Floating output: The Fw.0 problem is corrected.
5. Holleriths in READ: `*...*` and `‡...‡` in variable formats can no longer be read into. (ANSI).
6. X output: After tabbing backward, an X will no longer force blanks, but will act as a relative tab forward. (ANSI). Example:

```
PRINT 3, K, J
3 FORMAT (I4, T1, 4X, I8)
```

will no longer blank out the value of K.
7. P and E output: A positive scale factor will have a different effect on E and D output: `3PE12.3` will produce `123.4E+45` instead of `123.432E+45`. (ANSI). The scale factor `n` should be such that $-d+1 \leq n \leq d+1$ in order to produce meaningful output. `n>1` causes the decimal point to move to the right (previously, it was not moved).
8. Errors: Some error message numbers are changed. For example, KODER format error numbers are used for KRAKER also. Run time format checking may cause a diagnostic for a previously undiagnosed incorrect variable format.
9. L input: If the first nonblank character in an L field is not T or F, it will be diagnosed. (ANSI).
10. ENCODE/DECODE: If the format calls for more characters than are available according to the character count, an error will be given. The use of overlapping source and destination areas may produce different results.
11. Character input: `(*ABC*)` used in a READ will read 3 characters even if one is an *. (Internally the format will be `3HABC`.)
12. DOUBLE with E: Double precision variables may now be used in a one-to-one correspondence with E, F, G formats. (ANSI).
13. Q8ENTRY and RA+2: The normal initialization procedures of an FTN program must not be bypassed. Also, the file vector list in RA+2, etc., must remain intact.
14. FORSYS=: Programs making nonstandard use of the DAT buffer will fail.
15. Size: Load size will vary from 600B words less to 400B words more.
16. E formats: Commas may no longer be omitted after E formats. Previously, `(E20.2 E8.1)` was equivalent to `(E20.2.E8.1)`, but now it is confused with `(E20.0,2E8)`.
17. Reference Map: Format is changed.
18. Diagnostics: Statements changed.

W. Simon

PUBLIC

Utilities on Public Permanent Files

The following is a list of utility files and programs available publicly for use on the 6500 and/or the 6400 machines. To use them, type (or punch):

Filename	ATTACH,filename 6400/6500	I (Intercom) B (Batch)	Type	Remarks
FC	6400/6500	I/B	LGO	File concatenator to save PF space.
FEDIT	6400/6500	I	LGO	FOCUS-type editor.
MINOS	6400/6500	I	LGO	Mini file scanner (Editor-like).
PATCHY UPPA	6400/6500	B	LGO	Source file handling programs.
POP2	6400/6500	I	LGO	POP2 language.
SCAN	6400/6500	I	LGO	Output (print) file scanner.
SIGMA	6400/6500	I	EXCC	SIGMA graphical/mathematical language.
TER TERMI	6400/6500	I/B	Display Code	List of terminals (TER-Intercom only). Use Editor or COPYSBF.
USER	6400	I	LGO	Change terminal characteristics.

G. Barta

CHRISTMAS COMPUTER CENTRE SHUTDOWN

In order to combine necessary maintenance for power supplies and computers with the CERN official Christmas shutdown, the Computer Centre will be closed

from MIDNIGHT, FRIDAY 20th DECEMBER 1974

until 08.00, MONDAY 6th JANUARY 1975

C. Jones
J. Ferguson

NEXT NEWSLETTER

The closing date for submission of articles for the next Newsletter is Monday December 2nd, 1974.

COMPUTER DOCUMENTATION

CERN Computer Manuals

Program Library I and II

6000 Series Rev. D
*7600 Interim Rev. F,C

Revisions for the library manual will be automatically distributed to CERN users by internal mail.

The list of Computers at CERN has been revised (Revision 6) and is available from the Computer Documentation Office, telephone 2379.

List of Available CDC Literature used for the 7600/6000 System

Minimum Reference for 7600 FORTRAN Programmers:

FORTTRAN Extended Reference Manual	60305600 D
7600 Version 2	
6000 Version 4	
7600 SCOPE 2.0 User's Guide	60372600 B
7600 SCOPE 2.0 Reference Manual	60342600 E
SCOPE 2 Instant	60344300 A

Additional 7600 Operating System Information:

LOADER Reference Manual	60344200 D
Record Manager Reference Manual	60307300 E*

7600 Machine Language Programming:

COMPASS Reference Manual	60360900 D
7600 Hardware Reference Manual	60367200 B

Maintenance of Source Programs (7600 and 6000):

UPDATE Reference Manual	60342500 D*
UPDATE Instant	60360200 A

Interactive Computing on the 6000 (experimental Service only):

INTERCOM 4 Reference Manual	60307100 C
INTERCOM 4 Interactive Command Summary Card	60384600 B
Interactive INTERCOM guide for users of FORTRAN extended	60359700 B*

Minimum Reference for 6000 FORTRAN Programmers:

FORTTRAN Extended Reference Manual	60305600 D
7600 Version 2	
6000 Version 4	

FORTTRAN Extended Instant	60357900 A
7600 Version 2	
6000 Version 4	

6000 SCOPE 3.4 Reference Manual	60307200 E
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Additional 6000 Information:

6000 Reference Manual	60100000 Z,AA*
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Special Applications on the 6000:

6000 SCOPE Indexed Sequential Reference Manual	60305400 E
6000 Series COBOL Version 4 Reference Manual	60384100 D*
BASIC Language 2 Reference Manual	60306200 C
COMPASS Reference Manual	60360900 D*

Translation to 7000/6000 FORTRAN EXTENDED:

SIFT (FORTRAN Translator Program)

Programming Systems Bulletin	60358400 A
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- * New revision package has been received for this manual. Copies can be obtained from the Computer Documentation Office in building 513, 1st floor.

Please check in the table on the last page to find out whom to contact in order to get a manual

The following Revision packets of CDC Computer Literature (not included in the regular list) were received during April to October and are available from the Computer Documentation Office:

19980400 - C	APL* Cyber, R.M.
38708400 - H	6676A-TTY Multiplex. CE Manual
40825200 - K	405 Card Reader - CE Manual
40860700 - E	BE 102 Mag. Tape Transp. CE Manual
60042700 - AV	Cordwood Manual
60057600 - F	3000 Series Fortran, R.M.
60093700 - U	Magn. Tape Contr. C.E. Man.
60100000 - Z,AA	6000, R.M.
60102300 - U	Magn. Tape Contr. C.E. Man.
60118600 - K	3100 System Maint. Monit.
60119300 - DP	6000 Comp. Syst. diagr. and circ.
60125000 - AV,AW	Data Channel converters
60146100 - BF-BH	6404-A/C, Diag. and Circ.
60160600 - 18	6000/Cyber 70, System Maintenance Monitor
60167900 - AC	3234-A/C Mass Stor. Contr.
60212200 - V	Extended Core Stor. Ass.
60217400 - V	Data Set Controller
60239400 - C	Magn. Tape Stor. Train. Man.
60265500 - D	7638 Disk Storage Ref. Manual
60307000 - F	6000 Form. V. 1, R.M.
60307300 - E	Record Manager R.M.
60334600 - D	6671/6671-2. Data Set Contr.
60342500 - D	6000/7600 Update R.M.
60343700 - B	7611-2 Mag. Tape Station V.2
60347000 - G	Cyber 70 R.M. Vol. 1
60347200 - D	Cyber 70 model 73. Syst. Descript. and Progr.
60347300 - G-H	Cyber 70 R.M. Vol. 2
60347400 - F-G	Cyber 70 model 74. Syst. Description
60352500 - E	Mods. 72/73/74, I/O Specification
60359600 - B	Record Manager File Organ. User Guide
60359700 - B	Interactive Intercom Guide
60360700 - C	Fortran run V.2 R.M.
60363900 - H	Disk Storage Sub. Syst.
60373300 - B	Cyber Link Interchange
60384100 - D	Cobol 4. R.M.
60384200 - B	Cobol R.M. 7600 vers. 2
60407000 - B	Kronos 2.1 Oper. Guide
60407500 - E-F	6000 Series. Kronos 2.1 Oper.
60407600 - B	Kronos 2.1 Time Sharing
60407700 - C	Kronos 2.1 Oper. Guide
60408400 - B	Cyber Line Interchange Ops. Guide
60408700 - B	Input/Output Specific

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New Publications

60403900 - B	Magnet. Tape Subsystem R.M.
CDC/17317200	Graphically Oriented Design and Analysis Syst. (GODAS)
CDC/17321800	777 Interact. Graph. Syst. Vers. 2.0 R.M.
CDC/17322500	777 Interact. Graph. Syst. Users' Guide
CDC/17322800	Low-cost Graphics Terminal (LCGT)
CDC/17325100	777 Interact. Graph. Syst. Quick Draw
CDC/60384300	Data Descript. Language (DDL)
CDC/60385500	Query Update Vers. 2, Mini Users' Guide
CDC/60385700	Intercom Interact. Guide for Users of Cobol
CDC/60385900	Multi-Access Retrev. Syst. (Mars VI)
CDC/60387900	Fortran Common Library Mathem. Routines.

IF YOU NEED HELP

Programming Enquiry Office

	9.00 - 12.15		
New Computer Centre (opening hours:	14.00 - 17.30)	513/1-014	4952 or 8-792
Old Computer Centre (" "	11.00 - 12.30	2/1-061	2377
	15.00 - 17.30)		
TC RIOS (" "	8.45 - 10.30)	13/1-026	3529

Program Library

Problems with library routines	F. James	513/1-017	4959
Distribution of library material	Mme. D. Dupraz	513/1-015	4951

Documentation Office

J.L. Penaud	513/1-019	2371
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Computer Science Library

Mme. J. Megies	513/1-024	2379
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Tape Problems

Software	Mlle. J. Richards	513/1-005	4952 or 4957
Operations	J.C. Juvet	513/R-017	3106

Tape Allocation, Cleaning, Certification

Magnetic Tape Reception in 513	513/Entry Hall	4939
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INTERCOM Problems

C. Vandoni	31/2-007	3355
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RIOS Problems

M. Fleischmann	513/R-035	4932
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Computer Coordinator

C. Jones		bleeper 8-947
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Computer Service Problems

Computer Operations Manager	J. Ferguson	513/R-037	4935
Users Support Manager	G. Fast	513/1-011	4884

Computer Reception/Communications Operator

		4927
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to get:		Account Numbers			CDC Manuals			Priority Cards			Disk Space		
In Div.		Name	Tel	Ads	Name	Tel	Ads	Name	Tel	Ads	Name	Tel	Ads
DD	normal reserve	H. GROTE	4961	31/3-008	Your Group Leader His Deputy			H. GROTE -			S. KURJO -	2407	513/1-008
ESD	normal reserve	S. LORENSEN	2278	572/R-011	S. LORENSEN			S. LORENSEN			S. LORENSEN		
ISR	normal reserve	B. ZOTTER	3034	30/6-018	B. ZOTTER			B. ZOTTER			B. ZOTTER		
		Mlle M. HANNEY	2951	30/6-012	or			Mme Y. MARTI	2948	30/6-002			
Lab. II	normal reserve	L. EVANS	4823	2022	L. EVANS			L. EVANS			L. EVANS		
		-			-			-			-		
MPS	normal reserve	W. KUBISCHTA	2553	9/1-023	W. KUBISCHTA			Mme D. DUMOLLARD			W. KUBISCHTA		
		Mme DUMOLLARD	2548 (2438)	8/R-023	Mme D. DUMOLLARD			W. KUBISCHTA			Mme D. DUMOLLARD		
MSC	normal reserve	P. SKAREK	2213	26/1-003	P. SKAREK			P. SKAREK			P. SKAREK		
		-			-			-			-		
NP	normal reserve	Mme GRIFFITHS	2601	4/1-076	C. PETIT	2660	4/1-072	Mme GRIFFITHS			Mme GRIFFITHS		
		M. CIPRIOTT	2601	4/1-076	Mme GRIFFITHS			M. CIPRIOTT			M. CIPRIOTT		
TC/TCL	normal reserve	G. KELLNER	2127	11/1-004	G. KELLNER			TC production office (self-service)			V. FRAMMERY	3530	13/1-009
		L. PAPE	2124	13/3-024	(TCL) Mme. GALAND 4060 17/S-004			Mlle. JORAT 2710 18/R-036			E. PAGIOLA		
TH	normal reserve	C. WILKIN	3169	58/1-014	C. WILKIN			C. WILKIN			C. WILKIN		

PEOPLE TO CONTACT (DIVISIONS)