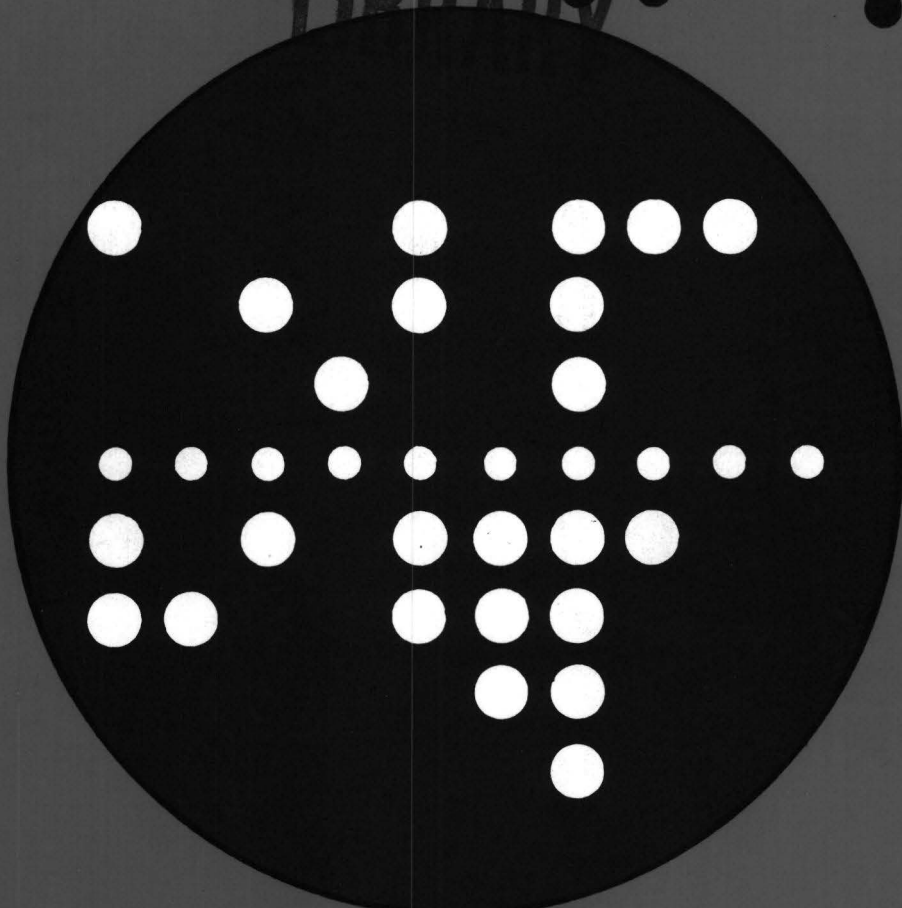


Commission of the European Communities ●

Joint Research Centre - Ispra ● ● ●

LIBRARY

Computing Centre Newsletter



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(beginning) May 1976 ● No 1..)

A service unit by its very nature must be in continuous contact with its clients, not only to produce the services but also to ensure that the clients are well informed on the availability of the services offered and how to use them, and to contribute to the judgement of their suitability to solve a given problem.

The service unit must also constantly keep itself informed about the needs of the clients, changes in requirements and new types of problems to be solved.

In practice this important exchange of information takes many forms, and is conducted on several fronts between the clients and the service unit.

Any attempt to increase the flow of information is always most welcome and it is in this spirit that I offer my best wishes for the future for this new Newsletter which the JRC Computing Centre has taken the initiative to start. I trust it will serve a useful purpose, and hope that it will develop in the spirit in which it has been conceived.

J.A. Dinkespiler
Deputy General-Director JRC

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Note of the Editor

The present Newsletter will be published monthly except for August and December.

The Newsletter will include:

- Developments, changes, uses of installations
- Announcements, news and abstracts on initiatives and accomplishments.

The Editor thanks in advance those who will want to contribute to the Newsletter by sending articles in English or French to one of the following persons of the Editorial Board.

Note de la Rédaction

Le présent Bulletin sera publié mensuellement excepté durant les mois d'août et décembre.

Le Bulletin traitera des:

- Développements, changements et emploi des installations
- Avis, nouvelles et résumés concernant les initiatives et les réalisations.

La Rédaction remercie d'avance ceux qui voudront bien contribuer au Bulletin en envoyant des articles en anglais ou français à l'un des membres du Comité de Rédaction.

Editorial Board / Comité de Rédaction

S.R. Gabbai, D.G. Ispra
H. De Wolde, C.C. Ispra
C. Pigni, C.C. Ispra
J. Pire, C.C. Ispra

<p>Editor : Sylvia R. Gabbai Layout : Paul De Hoe Graphical and Printing Workshop, JRC Ispra</p>
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Introduction

Hans Jørgen Helms

Director, Dept. A, Ispra Establishment

It gives me pleasure to introduce this new Newsletter to the users of the JRC Computing Centre, and to other interested parties.

The purpose of this initiative is to create a forum for dissemination of pertinent and exact information on the services and facilities which are available from the JRC Computing Centre, and the associated support actions mainly the program library and the support to computing actions.

As in any other computing service in a research environment the scope of the facilities available is quite large both in terms of hardware and software. These facilities moreover do undergo changes and developments.

Here — like everywhere — it is often difficult for the users to keep themselves informed of all what is available and how to use it. The Newsletter hopefully will serve to contribute as a bridge over this communication gap.

The Newsletter furthermore from time to time will bring articles informing on planned developments in the computing services.

The Newsletter has thus a quite precise scope, and it is the role of the editors to ensure this is implemented according to the intentions. While the editors do welcome suggestions for improvements we do not consider for the time being to widen the scope of the Newsletter.

The Newsletter will be issued ten times per year. Some of its information is of standing interest, and readers are therefore well advised to create a collection of back issues for reference purpose.

I wish the editors of the Newsletter success in their task and I hope and trust the readers will find the paper useful for their work with the computing services.

The Outlines of the Computing Centre

The next pages give a schematic standard information on the Computer Centre. The material is represented mainly as tables. Some of these tables will be published in the future only in case of modifications, others will show up in each edition of this newsletter. It is advisable to file this material for reference purposes.

The first two tables specify the hardware configuration, illustrated by the schematic lay-out of the components. We intend to describe the specific characteristics of some of the hardware items more in detail in following editions of the newsletter.

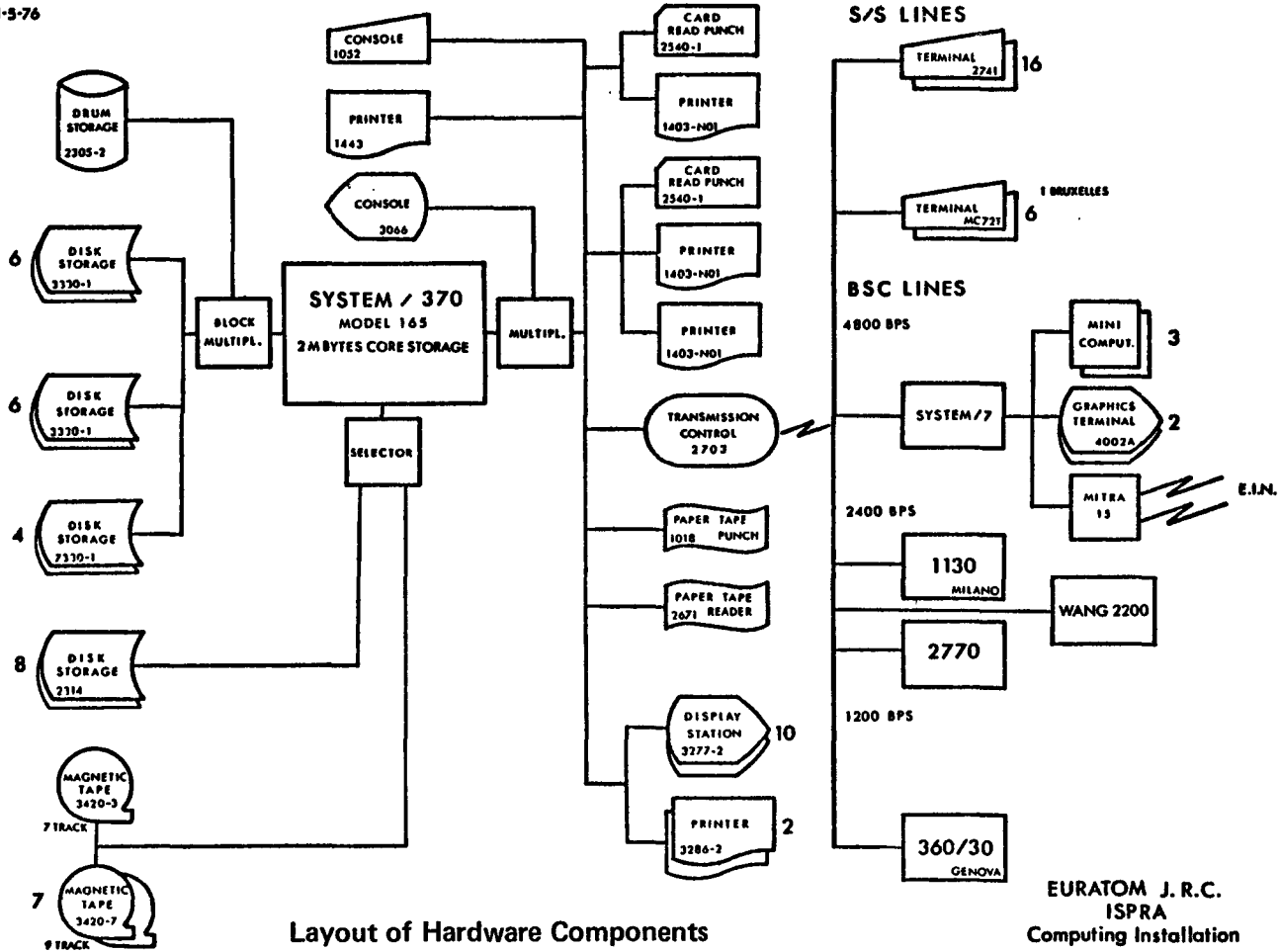
The second table might be useful in case your terminal malfunctions; you may consult the list for an equivalent appliance close at hand.

The software components are specified very shortly. Our intention is to discuss each of these items in consecutive editions of this newsletter.

The Installation Notes are produced by the computer through the execution of the described job. The notes give detailed information on specific subjects. For a part they are still written in french but in the near future all of them will be translated into english.

The statistics on computer use will be published monthly. In some cases the figures for the last years are specified also. The reader might use these data as a base for planning this computer workload to decrease turn around time and costs. The responsables of accounts may check their situation on a monthly base.

1-5-76



Layout of Hardware Components

EURATOM J.R.C.
ISPRA
Computing Installation

5

Computing Installation Description

Hardware Components

N	Type	Unit	Model	Function Description
1	IBM	3165	K00	Central Processing Unit
2	IBM	3360	5	Processing Storage (1MB)
2	TELEX	6360	5	Processing Storage (1 MB)
				Total central storage capacity 2 Megabytes
1	IBM	2880	2	Channels:
1	IBM	2880	2	Block multiplexor channel
1	IBM	2860	2	Selector channel
1	IBM	2870	1	Byte multiplexor channel with one selector subchannels
				Direct Access Units:
1	IBM	3830	2	Storage control
2	IBM	3333	1	Disk storage and control
4	IBM	3330	1	Disk storage
				Total 12 disk storage units (track length 13030 bytes)
1	ITEL-	7830	1	Storage control
4	ITEL-	7330	1	Disk storage
				Total 4 disk storage units (track length 13030 bytes)
1	IBM	2314	BO1	Storage control
1	IBM	2319	BO1	Disk storage
2	IBM	2319	BO2	Disk storage
				Total 8 disk storage units (track length 7294 bytes)
1	IBM	2835	2	Storage control
1	IBM	2305	2	Fixed head storage (track length 14660 bytes)
				Magnetic Tapes:
1	IBM	3803	1	Tape control unit
7	IBM	3420	7	Magnetic tape unit (9 tracks density 800/1600 bpi)
1	IBM	3420	3	Magnetic tape unit (7 tracks density 200/556/800 bpi)

1	IBM	2821	5	Peripheral Units:
2	IBM	1403	NO1	Control unit
1	IBM	2540	1	Printer
1	IBM	2821	1	Card reader/punch
1	IBM	1403	NO1	Control unit
1	IBM	2540	1	Printer
1	IBM	2822	1	Card reader/punch
1	IBM	2671	1	Control unit
1	IBM	2826	1	Paper tape reader
1	IBM	1018	1	Paper tape control
1	IBM	1443	NO1	Paper tape punch
1	IBM	1052	7	Printer (system log)
				Printer keyboard (secondary console)
				Display Stations:
1	IBM	3066	1	System console (Primary)
1	IBM	3272	2	Control unit
10	IBM	3277	2	Display station
2	IBM	3286	2	Printer
				Teleprocessing and RJE Network
1	IBM	2703	1	Transmission control
4				Lines BSC 4800 bauds (1 line S/7 connection, 1 line external RJE)
4				Lines BSC 2400 bauds (3 lines external RJE)
8				Lines BSC 1200 bauds (1 line external RJE)
				Terminals:
6	IBM	MC72T		Communication terminal
16	IBM	2741	1	Communication terminal
				Concentrator:
1	IBM	S/7	E16	Computing system
				— EIN network connection
				— 2 graphic stations TEKTRONIX 4002
				— 3 mini-computers WANG 2200
				Auxiliary Machines:
14	IBM	029	22	Printing card punch
3	IBM	029	C22	Printing card punch interpreter
4	IBM	129	3	Printing card punch interpreter
1	IBM	082	1	Sorter
1	IBM	519	3	Reproducer
1	IBM	557	1	Alphabetical interpreter
1	D-MAC			Curve-follower
1	CALCOMP	900/1136		Graphic output system

**Table of Conversational Users Operating
under Internal T.P. or Data/Communication System**

Terminal type	Place bldg.	User	Station		Operating under		
			Number		Address	TP	IMS/DC
			TP	IMS			
IBM MC72T C	36	Eurocopi	27		031	*	
IBM MC72T C	44	ESIS	12		032	*	
IBM MC72T B	28-1	B.C.R.	35		033	*	
IBM MC72T B	Brx	B.C.R.	36		034	*	
IBM MC72T B	36	Department A			035		
IBM MC72T B	65	Department A			036		
IBM 2741 C	65 A	Department A	08		038	*	
IBM 2741 C	44	Physics	09		039	*	
IBM 2741 C	36	E.I.N.			03A		
IBM 2741 C	51	Health protection	11	6	03B	*	*
IBM 2741 C	72	Heat transfer and fluid mechanics					
IBM 2741 C	46	Chemistry	13		03D	*	
IBM 2741 C	68	Technology-EMT	14		03E	*	
IBM 2741 C	25	Technology-EMT	16		040	*	
IBM 2741 C	36	Department A	01	3	041	*	*
IBM 2741 C	36	Eurocopi	23	4	042	*	*
IBM 2741 C	2 A	Chemistry	24		043	*	
IBM 2741 C	42	Teledetection	25		045	*	
IBM 2741 P	28	Materials	17		046	*	
IBM 2741 P	36	Department A	22		047	*	
IBM 2741 C	36	E.I.N.			048		
IBM 2741 P	69	Heat transfer and fluid mechanics	34		049	*	
IBM 3277/2	36	Library	04	7	0A0	*	*
IBM 3277/2	36	Data processing	05	10	0A1	*	*
IBM 3277/2	36	Library	06	8	0A2	*	*
IBM 3277/2	36	Eurocopy	07	9	0A3	*	*
IBM 3277/2	36	Chemistry	33	15	0A4	*	*
IBM 3277/2	64	Administration and personnel		11	0A5		*
IBM 3277/2	64	Administration and personnel		12	0A6		*
IBM 3277/2	65	Finance and budget		13	0A7		*
IBM 3277/2	36	E.I.N.			0A9		
IBM 3286/2	36	Chemistry	33	14	0A8	*	*
IBM 3286/2	64	Administration and personnel		16	0AC		*
IBM 3286/2	65	Finance and budget		17	0AD		*
IBM 3286/2	36	E.I.N.			0AF		
IBM MC72T and 2741		21 users (17 TP - 3 IMS/DC)					
IBM 3277/2		9 users (5 TP - 8 IMS/DC)					
IBM 3286/2		4 users (3 IMS/DC)					

Software Components

- **System:**

Operating System	O.S. MFT 21.7
Spool program	HASP II V.3.1
Teleprocessing	TELEUR (local system) IMS/DC V.2.4.1

- **Compilers*:**

Assembler F	
Assembler H V.5.0	
FORTRAN G	
FORTRAN H	
COBOL ANS V.3.2	
Sort/Merge V.1.4	
PL/I Optimizing V.1.2.2	
ALGOL	

- **Special System:**

PMS IV V.1.4	Project Management System
CSMP III V.1.3	Continuous System Modelling Program
MPSX—MIF V.1.6	Mathematical Programming System
GPSS	General Purpose Simulation System
DYNAMO II V.4.6	Dynamic Modelling
SIMPL/1 V.1.0	Simulation PL/I
CARONTE	Control Execution Interdependent Programs
MIT-PROJECT 1	Project Control Language
MIT-ICES	Integrated Civil Engineering System
GENESYS	General Engineering System
SHELTRAN	SHELL TRANSLATOR (Structure FORTRAN precompiler)
FORMAC	PL/I and FORTRAN preprocessor
IMS DB/DC V.2.4.1	Information Management System Data Base/Data Communication

- **Service and utility programs:**

LIBRARIAN	
FILEEDIT—PSQ	
COREA	
OS/DITTO	

***) Libraries:** *The user can dispose of a library of mathematical programs (algorithm or subroutines), and of a library of problem oriented application programs).*

Guide to the Users

Access to the Computer

To use the computer the user must have an authorization, that is released by:

Miss G. RAMBS
Ph. 0332/780131/758
Bldg 36 – Room 126
Department A – J.R.C. EURATOM
ISPRA (Va) – Italy

With the authorization the user must prepare one or more "job-cards" according to the following format:

C.1 **C.12** **C.16** **C.54**
//xxxxxxxxJOB wwwwzzzz,5,yyddd',nnn–NNNN...N'

where:

xxxxxxxx is the job name, one to eight characters alphanumeric, the first character must be alphabetic. The use of different short mnemonic names is recommended.

wwww is the authorization number.

zzzz is the programmer number.

yyddd is the year and the day of the expiration date of the authorization.

nnn is the box number.

NNNN...N is the name of the user.

Each "job-card" must be verified and approved by Miss Ramsb.

For the batch-processing the user can utilize the following work-classes: (*)

class A	partition size 50K
class 1	partition size 130K
class 2	partition size 200K
class 3	partition size 300K
class D	partition size 350K (reserved to administration)
class 4	partition size 500K
class 5	partition size 700K

An example of deck to work in batch-processing:

```
//EXAMPLE JOB.....
$TIME004          (expected job running time in minutes)
$LINE003         (expected job printed lines in thousands)
$CLASS3         (selected work class)
//STEP1 EXEC FTHCLG
//CMP.SYSIN DD *
.....
.....
.....
.....
/*
//GO.SYSIN DD *
.....
.....
.....
.....
/*
7/8
```

where:

␣ = blank

expected job running time = equivalent time

equivalent time = CPU/time + I/O time

I/O time = (NDA * 2.5 + NTA * 1.5) second

NDA = number of expected I/O disk in hundreds

NTA = number of expected I/O tape in hundreds

More details about installation control cards are recorded in the "installation notes".

**) The user may obtain more details about the argument to print the installation notes. How to perform the job is explained in the second paragraph of the chapter "Guide to the user".*

Installation Notes

The users may obtain a copy of the installation notes by executing the following job:

//.....JOB (your job card)

```
$      TIME      TTT
$      LINES     LLL
//      EXEC      LIHNO,MEMB = NNNN
```

where TTT, LLL and NNN depend on the user choice:

NNNN	Contents	TTT	LLL
INFO	general information on 370/165, O.S. and HASP utilization	001	002
PROC	note on installed procedures	001	003
PPGL	information on program product compilers	001	002
UTIL	programs and utility routines	001	002
CSSL	scientific subroutines	001	003
PCAL	calcomp program library	001	003
TELE	tele-processing	001	003
TPUT	utility routines for tele- processing	001	002
SUPA	IBM 3270 display station	001	002
TEK	Information about Tektronic terminal	001	002

Users Scratch Area

In batch processing the users can use freely scratch area up to a maximum of 150 cylinders on 3330 units.

These units are defined by class name SYSDA.

Charges for Using the Computing Installation:

Miss Rams can advise the external users on the price for their utilization of the computing installation.

For internal users the following rates are applied:

IBM 370/165 (*)	1.260	UA/1h
Peripheral operations:		
local batch		
read cards	0.0009	UA/card
punch cards	0.0043	UA/card
print	0.0565	UA/page
Card manual punching:		
whithin one day	0.16	UA/card
accelerated	0.24	UA/card
CALCOMP	66.	UA/1h
Disk pack rent:		
Mod. 3330 off-line, indivisible (minimum 3 months)	33.5	UA/month
Mod. 3330 on-line, indivisible (minimum 3 months)	1.244.-	UA/month
Mod. 3330 on-line, per cylinder	3.90	UA/month
Mod. 3330 on-line, per track according to real occupation	0.0125	UA/day
Teleprocessing connections:		
connection 2741 (with line adapter)	68.-	UA/month
connection MC72T or 2741, without modems	65.-	UA/month
BSC connection, without modems:		
1200 or 2400 bps	259.-	UA/month
4800 bps	348.-	UA/month

A forfait of 15 minutes of equivalent time (346 UA) per month plus the real number of I/O accounted by the station, will be charged to the conversational stations (internal teleprocessing).

(*) UA = Unit Account = Lit. 625,- DM 3,66,- FF 5,554,- FB 50,- FL 3,62,- £ 0,42.-

The time is an equivalent time calculated by the formula:

$$T_{eq} = T_{cpu} + K_1 \times \Sigma \text{ I/O tape} + K_2 \times \Sigma \text{ I/O disk in hours}$$

$$K_1 = 3 \times 10^{-6} \quad K_2 = 7 \times 10^{-6}$$

Support to Computing

• Basic System

Manager	Mr. J. Pire	Bldg 36 Room 1814	ph. 732
Secretary and Administration	Miss. G. Rambs	Bldg 36 Room 126	ph. 758
Computer Room	Mr. P. Tomba Mr. A. Binda	Bldg 36 Room 1846	ph. 710

• System and Software Maintenance and Development

	Mr. C. Daolio	Bldg 36 Room 1839	ph. 742
	Mr. P. Moinil	Bldg 36 Room 1841	ph. 704
	Mr. C. Pigni	Bldg 36 Room 1840	ph. 746
	Mr. C. Simmelhag	Bldg 36 Room 1841	ph. 704

• Support to Computer Users

Responsible	Mr. G. Gaggero	Bldg. 36 Room 1874	ph. 787
Secretariat	Mrs. G. Hudry	Bldg. 36 Room 1874	ph. 787

This activity is intended to provide a generalized support to the users of the computer installation and can be subdivided into the following items:

a) Support to the users of application programs

- Installation/maintenance of a library of programs which are of interest for the various research activities of the Centre. Emphasis is put on large and complex systems which are of wide utilization (e.g. optimization, simulation, project control, engineering, and graphical packages).
- Study of the performances of these programs in order to advice users on utilization.
- Organization of seminars and courses for education and training of the users.

b) Support to the developers of programs

- Organization of seminars and courses for education and training of "programmers". They are intended to teach programming languages, programming techniques and debugging methods.
- Individual advising service in the program design phase as well as in the programming and debugging phase.

- Development of utility software (e.g. programming and documentation aids).

c) Support in Mathematical and Statistical Algorithms

- Maintenance of libraries of mathematical and statistical subroutines.
- Advising users on the choice of the best suited algorithms for specific problems; seminarial activity.

We must point out that this activity is still in an organizational phase and suffers of a limitation in the available staff.

At present the following persons are providing users support in the specified areas of competence:

Mr. F. Argentesi	Mathematical/Statistical Libraries (tel.: 778)
Mr. A. Inzagli	Structural Analysis Programs; Modular Programming Systems ICES and GENESYS (tel.: 755).
Mr. L. Olivi	Mathematical/Statistical Libraries (tel.: 778)
Mr. A. Pollicini	Programming Languages; JCL; Structured Programming; Utilities; Teleprocessing Applications (tel.: 743)
Mr. C. Van Den Muyzenberg	Programming Languages; JCL; Utilities (tel.: 781)
Not yet nominated	Filedit-PSQ, LIBRARIAN, CTE, CARONTE, Graphic Packages, Optimization and Project Control Packages, Simulation Systems.

They can be contacted for advice after arrangement of a meeting, with the exception of Mr. Van Den Muyzenberg who is available for direct advice on the most common problems encountered using the computer.

Those who are interested in getting information on the available programs, in the acquisition of new programs or who have general problems are asked to contact Mr. G. Gaggero.

Statistics of computing installation utilization

Report of computing installation exploitation for the month of January

	YEAR 1976	YEAR 1975
Number of working days _____	21	21
Work hours from 8.30 to 1.30 for _____	14.00 h	12.00 h
Duration of scheduled maintenance _____	25.02 h	24.66 h
Duration of unexpected maintenance _____	5.08 h	19.17 h
Total maintenance time _____	30.10 h	44.83 h
Total exploitation time _____	251.90 h	207.17 h
CPU time in problem mode _____	77.45 h	76.09 h
Teleprocessing:		
CPU time _____	1.60 h	0.80 h
I/O number _____	904,000	543,000
Equivalent time _____	7.90 h	4.50 h
Elapsed time _____	110.00 h	70.80 h
Batch processing:		
Number of jobs _____	8,650	8,128
Number of cards read _____	2,603,000	2,262,000
Number of cards punched _____	175,000	197,000
Number of lines printed _____	24,482,000	21,410,000
Number of pages printed _____	548,000	485,000

BATCH PROCESSING DISTRIBUTION BY CLASS

	A	1	2	3	4	5	D	TOTAL
Number of jobs	1555	3654	1130	1549	83	113		8084
Elapsed time (hrs)	23	116	62	116	11	23		351
CPU time (hrs)	0.72	14	8	33	4	11		71
Equivalent time (hrs)	5.3	56.1	31.0	95.9	7.8	18.1		214
Turn around time (hrs)	0.39	1.3	1.1	1.7	2.8	6.5		1.71

PERCENTAGE OF JOBS FINISHED IN LESS THAN

TIME	15'	30'	1h	2h	4h	8h	1D	2D	3D	6D
% year 1975	33.8	51.6	68.4	81.6	89.9	92.3	99.3	99.4	99.4	100
% year 1976	29.3	47.6	64.5	78.3	90.3	97.2	99.4	99.4	99.5	100

Utilization of the computer center by the objectives and appropriation accounts for the month of January

**IBM 370/165
equivalent time in hours**

120	General Infrastructure	84.5017
130	Scientific and Technical Support	1.0733
143	ESSOR Reactor	2.5979
145	Medium Activity Laboratory	0.0268
146	Central Bureau for Nuclear Measurements (CBNM)	0.1780
191	Technical Support to Commission Activities	1.0711
193	Technical Support to Power Stations	1.6508
211	Waste Disposal	0.7852
213	Materials Science and Basic Research on Materials	5.6252
214	Hydrogen	0.2911
221	Reactor Safety	28.1295
222	Applied Informatics	23.1448
223	Information Analysis Services	37.5374
230	European Informatics Network	2.0213
251	Standards and Reference Materials	5.2773
252	Protection of the Environment	8.9596
253	Remote Sensing of Earth's Resources	2.1723
254	New Technologies	0.0627
412	Fissile Materials Control	1.1067
	TOTAL	206.2127
190	Services to external Users	18.1882
	TOTAL	224.4009

Statistics of computing installation utilization

Report of computing installation exploitation for the month of February

	YEAR 1976	YEAR 1975
Number of working days _____	20.5	20
Work hours from 8.30 to 1.30 for _____	14.00 h	12.00 h
Duration of scheduled maintenance _____	24.47 h	18.58 h
Duration of unexpected maintenance _____	2.83 h	8.58 h
Total maintenance time _____	27.30 h	27.16 h
Total exploitation time _____	259.70 h	188.83 h
CPU time in problem mode _____	111.23 h	81.01 h
Teleprocessing:		
CPU time _____	1.50 h	0.80 h
I/O number _____	674,000	416,000
Equivalent time _____	6.20 h	3.70 h
Elapsed time _____	102.00 h	77.00 h
Batch processing:		
Number of jobs _____	9,366	8,650
Number of cards read _____	2,646,000	2,603,000
Number of cards punched _____	199,000	175,000
Number of lines printed _____	25,717,000	24,482,000
Number of pages printed _____	579,000	548,000

BATCH PROCESSING DISTRIBUTION BY CLASS

	A	1	2	3	4	5	D	TOTAL
Number of jobs	1545	4013	1330	1689	165	85		8827
Elapsed time (hrs)	23	130	66	186	24	25		454
CPU time (hrs)	0.60	20	11	51	10	11		104
Equivalent time (hrs)	6.8	65.3	33.1	114.6	16.7	17.9		254
Turn around time (hrs)	0.74	2.2	1.7	2.3	3.5	7.8		2.06

PERCENTAGE OF JOBS FINISHED IN LESS THAN

TIME	15'	30'	1h	2h	4h	8h	1 ^D	2 ^D	3 ^D	6 ^D
% year 1975	18.8	33.7	52.3	69.7	83.2	89.2	98.4	99.2	99.2	100
% year 1976	24.2	40.6	55.7	69.6	83.5	96.3	98.4	98.9	99.4	100

Utilization of the computer center by the objectives and appropriation accounts for the month of February

**IBM 370/165
equivalent time in hours**

120	General Infrastructure	82.1637
130	Scientific and Technical Support	0.6455
143	ESSOR Reactor	4.6726
145	Medium Activity Laboratory	0.2285
146	Central Bureau for Nuclear Measurements (CBNM)	
191	Technical Support to Commission Activities	1.3646
193	Technical Support to Power Stations	4.4783
211	Waste Disposal	5.0815
213	Materials Science and Basic Research on Materials	10.1866
214	Hydrogen	0.6848
221	Reactor Safety	43.5660
222	Applied Informatics	19.1042
223	Information Analysis Services	43.4503
230	European Informatics Network	2.6121
251	Standards and Reference Materials	4.1360
252	Protection of the Environment	9.5351
253	Remote Sensing of Earth's Resources	3.9938
254	New Technologies	0.1095
412	Fissile Materials Control	0.8552
	TOTAL	236.8683
190	Services to external users	18.7737
	TOTAL	225.6420

Statistics of computing installation utilization

Report of computing installation exploitation for the month of March

	YEAR 1976	YEAR 1975
Number of working days _____	22	18
Work hours from 8.30 to 1.30 for _____	15.00 h	12.00 h
Duration of scheduled maintenance _____	33.96 h	25.66 h
Duration of unexpected maintenance _____	4.34 h	6.50 h
Total maintenance time _____	37.30 h	32.16 h
Total exploitation time _____	286.70 h	183.83 h
CPU time in problem mode _____	118.58 h	73.68 h
Teleprocessing:		
CPU time _____	0.80 h	0.80 h
I/O number _____	433,655	477,000
Equivalent time _____	3.90 h	4.20 h
Elapsed time _____	87.00 h	75.00 h
Batch processing:		
Number of jobs _____	10,067	7,618
Number of cards read _____	2,904,000	2,623,000
Number of cards punched _____	191,000	289,000
Number of lines printed _____	28,563,000	22,760,000
Number of pages printed _____	648,000	506,000

BATCH PROCESSING DISTRIBUTION BY CLASS

	A	1	2	3	4	5	D	TOTAL
Number of jobs	1494	3758	1185	1635	391	120	877	9460
Elapsed time (hrs)	38	174	115	172	97	35	148	779
CPU time (hrs)	0,8	16	17	28	25	11	20	118
Equivalent time (hrs)	10,5	55.3	38.1	65.0	41.1	18.2	78	306
Turn around time (hrs)	0.36	0.9	1.3	1.0	1.5	2.4	2.4	1.06

PERCENTAGE OF JOBS FINISHED IN LESS THAN

TIME	15'	30'	1h	2h	4h	8h	1 ^D	2 ^D	3 ^D	6 ^D
% year 1975	20.9	35.7	54.3	71.6	84.0	88.2	98.1	99.5	100	
% year 1976	36.2	55.5	73.1	86.2	95.6	98.8	99.5	99.6	99.9	100

Utilization of the computer center by the objectives and appropriation accounts for the month of March

**IBM 370/165
equivalent time in hours**

120	General Infrastructure	100.5151
130	Scientific and Technical Support	0.5392
143	ESSOR Reactor	1.9683
145	Medium Activity Laboratory	0.0222
146	Central Bureau for Nuclear Measurements (CBNM)	—
191	Technical Support to Commission Activities	1.7634
193	Technical Support to Power Stations	0.8864
211	Waste Disposal	3.1219
213	Materials Science and Basic Research on Materials	6.4486
214	Hydrogen	1.1797
221	Reactor Safety	64.5390
222	Applied Informatics	34.3655
223	Information Analysis Services	31.6099
230	European Informatics Network	2.6985
251	Standards and Reference Materials	1.8544
252	Protection of the Environment	10.7751
253	Remote Sensing of Earth's Resources	8.0418
254	New Technologies	0.2167
412	Fissile Materials Control	0.2911
	TOTAL	270.8368
190	Services to external users	28.0834
	TOTAL	298.9202

Evolution du Centre de Calcul

Hardware

Depuis le mois d'août 1972, l'ordinateur en service au Centre de Calcul est un IBM 370/165, installé en remplacement d'un IBM 360/65.

L'unité centrale nouvelle est au moins trois fois plus rapide que l'ancienne, mais jusqu'au 1er mars dernier sa mémoire fut limitée à 1Mbyte, ce qui empêchait d'utiliser correctement la puissance de calcul potentielle.

Vu l'exiguïté de la mémoire il n'était pas possible d'équilibrer la charge.

Pendant les heures normales d'ouverture du Centre, l'ordinateur était presque entièrement dédié aux travaux n'excédant pas dix minutes; le plus souvent ils consistaient en compilations et tests de courte durée. Ces applications sont généralement I/O bound, c'est-à-dire qu'elles ont plus recours aux unités périphériques qu'à l'unité centrale.

L'absence de règlement en matière de travail par tour, rendait précaire l'utilisation pendant les heures de nuit qui auraient pu être dédiées aux grosses exploitations.

De plus, les besoins de l'administration utilisant de gros programmes de gestion de fichiers réduisaient ultérieurement les possibilités de fournir un service satisfaisant aux gros utilisateurs de programmes scientifiques.

En bref, l'emploi de l'unité centrale ne dépassait pas 35% du temps d'exploitation.

Le 1er mars une mémoire supplémentaire de 1Mbyte a été mise en service. Bien que n'influençant pas le prix de l'unité d'oeuvre, cette adjonction a permis:

- i) d'exécuter les travaux administratifs en parfait parallélisme avec les programmes scientifiques (compilations et tests) et cela au bénéfice tant des utilisateurs scientifiques que de l'administration en ce qui concerne les temps de réponse aux travaux présentés.
- ii) de traiter pendant toute la période d'exploitation les gros problèmes de production scientifique (exigeant 500 et même 700 Kbytes de mémoire centrale).

Non seulement ces applications reçoivent un service infiniment meilleur qu'auparavant, mais ce travail supplémentaire de l'ordinateur ne nuit en aucune façon à l'exécution de problèmes de mise au point et d'administration. Par contre il contribue simplement à une utilisation plus rationnelle de l'unité centrale en absorbant la puissance potentielle non utilisée par les autres applications.

Dès la mise en service de la mémoire supplémentaire, l'utilisation de l'unité centrale a presque doublé et le temps de réponse moyen est diminué de moitié.

Un second point d'étranglement de l'ordinateur était constitué par la quantité de mémoire à accès direct disponible. Devant l'impossibilité d'obtenir de l'espace sur disques, les utilisateurs étaient forcés à utiliser des bandes magnétiques. Le temps de montage et démontage des bandes n'était pas sans influence sur les temps de réponse; une erreur dans la désignation de la bande à utiliser conduit au rejet du travail.

Au 1er mars une première amélioration a été apportée: une file de 8 unités IBM 2319 a été remplacée par 4 unités du type 3330 augmentant ainsi non seulement la vitesse d'accès et de transfert, mais aussi la capacité d'environ 200 millions d'octets. Ce supplément de capacité devait malheureusement être consacré d'une part, au "spooling" (de façon à faire face aux pointes de stockage des lignes en attente d'impression produites par les nombreux programmes travaillant en parallèle) et, d'autre part, aux fichiers "scratch" requis par les programmes en exécution.

Vers le mois de juillet la situation sera normalisée: la deuxième file d'unités IBM 2319 sera remplacée par 8 unités du type 3330 augmentant cette fois la capacité de 600 M. octets et portant ainsi le total des mémoires à accès direct à 2400 M. octets, ce qui correspond aux besoins exprimés par les utilisateurs pour l'année 1977.

Par ailleurs un "mini-ordinateur" WANG a été installé et est en usage libre.

Software

L'adjonction du banc supplémentaire de mémoire et le remplacement des unités à disques ont été faits, en général, de manière absolument transparente pour les utilisateurs. A part un nombre plus élevé de partitions, permettant l'exécution parallèle d'un plus grand nombre de programmes, le système nouveau est identique au précédent: O.S. MFT V. 21.7.

La mise en service d'une nouvelle facilité conversationnelle est prévue d'ici peu; il s'agit du langage A.P.L. Son usage sera possible, à titre expérimental, quatre heures par jour en deux sessions de deux heures chacune. Un cours avec démonstration sera organisé en temps utile et des informations complémentaires sont diffusées dans le présent bulletin. Cette facilité sera accessible aux terminaux du type IBM 2741 (ou IBM MC 72T).

Par ailleurs, un système O.S. M.V.T. V. 21.8 est en préparation. En ce qui concerne les travaux actuels, son installation devrait être absolument transparente. Il permettra d'offrir de nouvelles facilités conversationnelles du

type "vérification syntactique" pour les principaux langages de programmation et soumission successive des travaux pour exécution. Des informations plus complètes seront fournies en temps utile et des cours seront organisés.

L'utilisation de cette facilité présuppose la mémorisation de nombreux fichiers sur des supports à accès direct et est par conséquent liée à l'installation préalable des disques prévus pour le mois de juillet.

Teleprocessing

De nombreux mini-ordinateurs WANG existent actuellement dans le centre. Ils pourraient être connectés à l'ordinateur soir par l'intermédiaire du concentrateur Système/7 soit directement à l'ordinateur central.

Les liaisons via le Système/7 sont actuellement saturées et le software de connexion directe à l'ordinateur central ne sera prêt qu'au cours du deuxième semestre de 1976.

Le Service de Technologie a déjà connecté un WANG par l'intermédiaire du S/7 et envisage, le plus tôt possible, de se connecter directement à l'ordinateur central.

Les services désirant l'un ou l'autre type de connexion peuvent obtenir auprès de M. Broggi des informations concernant son expérience en matière de liaison.

Il serait peut-être souhaitable en vue de coordonner les liaisons éventuelles et de faire bénéficier tous les utilisateurs potentiels de l'expérience des autres de constituer un "Club Wang".

The Newsletter is available at :

Mrs R. Porta
Program's Library
Bldg. 36 - Tel. 760

*Des exemplaires du Bulletin
sont disponibles chez :*

Mme R. Porta
Bibliothèque des Programmes
Bât. 36 - Tel. 760

Note Concerning the Terminals

As has already been notified, the computer is now accessible through terminals as follows:

Monday	14.000 to 20.00 hr
Tuesday-Friday	8.30 to 12.30 hr. and 13.30 to 20.00 hr.

We must insist that the users close their sessions properly according to the prescriptions. Otherwise you may prevent the access for other users because the number of possible connections is less than number of installed terminals.

Keeping the stations switched on for long times may also shorten their lifetimes.

Note from the Program Library

One of the aspects to the support to computing is the maintenance of the collection of technical and scientific computer programs as are developed in-house or which are adaptation of existing outside programs.

These packages may be used on-side by JRC personnel and by visitors from other institutes or may be distributed through EUROCOPI.

The present collection of the Program Library is undergoing a thorough overhaul to arrive at a trimmed collection of useful material. The authors have been contacted personally to evaluate the usefulness of the present programs and to update the information on their products.

People who dispose of programs adapted for a larger audience and which are not yet in the Program Library are kindly asked to make them available by compiling this submission request form. It is important to realize that the delivery of a complete software product is equivalent, in terms of scientific profit, to publications as reports and periodicals.

The Heads of Department and the Heads of Division have been asked to take the responsibility for the decision on the availability for distribution and publication of the software items.

**J.R.C. PROGRAM LIBRARY
PROGRAM SUBMISSION REQUEST**

TYPE: <input type="checkbox"/> A Program developed within the JRC	<input type="checkbox"/> B Adaptation of an existing program	<input type="checkbox"/> C Corrections
PROGRAM IDENTIFICATION		(1)

Basic information

Author(s)	Contract number Contract name Research objective Programme fiche
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Software components

The software consists of: * <input type="checkbox"/> Source program deck * <input type="checkbox"/> Test data * <input type="checkbox"/> Complete computer printed output of the compilation and results of the test run * <input type="checkbox"/> User's manual * <input type="checkbox"/> Completed program abstract EUROCOPI Program description form <input type="checkbox"/> Reference manual <input type="checkbox"/> Operation manual
Asterisked items are required for acceptance of the program

Program destination

The requesting Service proposes that this program should be: <input type="checkbox"/> made available for use on the JRC computing installation <input type="checkbox"/> made available for distribution
If the program has to be distributed, is it subject to any restriction concerning the non-member countries? <input type="checkbox"/> NO <input type="checkbox"/> YES Specify

Requesting service

Establishment Department Division Requestor name Date Signature
--

Visas

VISA: Head of Division Date Signature
VISA: Head of Department Date Signature

Acceptance by JRC Program Library

Date:	Signature:
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(1) The program identification is subject to the following rules:
 type B: < original program name > -A xx
 type C: < program name > -C xx
 where xx is a sequence number

Courses and Seminars

■ **Computer Aided Analysis of Structures using the ICES-STRUDL II System**

In the framework of the Ispra Courses, a series of lectures on "Computer Aided Analysis of Structures Using the ICES STRUDL II System" are planned for June 8-11, 1976.

The Course illustrates the structural analysis capabilities of the ICES sub-system STRUDL II. It is intended to train engineers working in various fields such as mechanical, civil, nuclear, and aeronautical engineering in the use of advanced informatics tools.

The course will show, through a series of examples how practical engineering problems of static dynamic analysis of framed and continuous structures can be formulated and solved by using the problem oriented language of STRUDL II.

The course will be given by members of the Ispra Establishment and by invited lecturers from the European industries and universities.

Participants should have a knowledge of the principles of structural mechanics and of the finite element method. English will be used for the lectures.

The organization of this course is part of the educational activity of the European Computer Programme Institute-EUROCOPI.

Although it is not possible for JRC personnel to subscribe as a full participant, interested parties may attend the course as auditors. Also in this case the secretary of the "Ispra Courses" has to be informed.

■ **Seminar WANG**

It is intended to organize a seminar on the use of the WANG computer. The course will explain the programming and the application of the software routines which are presently developed.

Although a precise date has not yet been chosen, interested programmers are asked to contact already M. van den Muyzenberg.

■ **Introduction to APL**

Dr. O. Murro and Dr. L. Cardetta from the C.S.A.T.A., (Centro Studi e Applicazione in Tecnologie Avanzate, Bari), will take care of an introductory course APL, during the week of 21th – 25th of June. We intend to publish a summary on APL in the next newsletter.

People who are interested are kindly asked to inform Mr. Pollicini (tel. 743).

Les personnes intéressées et désireuses de recevoir régulièrement "Computing Centre Newsletter" sont priées de remplir le bulletin suivant et de l'envoyer à :

**Mme R. Porta
Bibliothèque des Programmes
Bât. 36, Tel. 760**

Nom

Adresse

.....

Tel.



The Persons interested in receiving regularly the "Computing Centre Newsletter" are requested to fill out the following form and to send it to:

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Building 36, Tel. 760**

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Address

.....

Tel.