13. COMPUTER STATISTICS
IBM SYSTEMS 5/10/81 - 1/11/81

Weekly availability is uptime/168.
MVT availability is based on 40% contributions from each 195 and 20% from the 3032.

SYSTEM AVAILABILITY

MVT - 94.3%, CMS - 96.7%, ELECTRIC - 94.7%.

MVT THROUGHPUT

Average jobs/week	14111
Average CPU hrs/week	232

TERMINAL SYSTEM USERS

	CMS	ELECTRIC
Registered users	655	1267
Active users	272	625

SERVICE LEVELS

Percentage of prime shift short jobs not turned round inside guideline:

MVT Batch	Core size	P12	P10	P8
	0 - 210k	2.5	8.5	1.9
	212k - 350k	-	6.1	1.4
	352k - 560k	-	1.4	1.8

TERMINAL SYSTEMS

Response to trivial command during peak period:

CMS	Week 1	Week 2	Week 3	Week 4
% <1 sec	93.0	93.0	93.0	91.0
% <3 secs	99.0	99.0	99.0	98.0

Please note that the drop in CMS response figures in the fourth week was due to known hardware problems on the drums.

ELECTRIC				
% <2 secs	73.2	78.3	81.2	83.3
% <5 secs	88.5	91.8	94.0	94.2

USAGE FOR CURRENT FINANCIAL YEAR - 31 WEEKS TO DATE

Board	MVT 195hrs	ELECTRIC AUS	CMS AUS
ASR	389	510	13
Engineering	557	267	16
Nuclear Physics	4564	4032	145
Science	942	1378	63
Central Funding	146	663	803 *
NERC	115	302	30
External	106	454	28
TOTAL	6819	7606	1100

* These entries include some usage due to "service" functions which are strictly an overhead and should be accounted separately.

Note that ELECTRIC availability is only monitored from 0800 hrs to 2000 hrs Monday to Friday. CMS and MVT are monitored 24 hours a day, 7 days a week.

CMS Usage Statistics

Due to an error in the charging algorithm which did not discount weekend usage but charged the weekends as normal weekdays, we are republishing the CMS usage figures from 5 October 1981. We apologise to users for any inconvenience this error may have caused.

M R Jane
(Head of Resource Management and Communications)

ICF SYSTEMS

AU USAGE BY BOARD - periods 8104-8111

Board	Prime	GEC	DEC-10	TOTAL
ASR	118	231	22	371
Engineering	8264	3413	4026	15703
Nuclear Physics	0	2	0	2
Science	132	156	1456	1744
Central Funding	3087	1003	1251	5341
System Overheads	2671	210	2557	5438
External	259	130	140	543
TOTAL	14531	5145	9466	29142

14. DIARY

USER MEETINGS

20 January 1982 - IBM Representatives in RAL Lecture Theatre

The programme for this meeting includes items on mainframe procurement, initial thoughts on MVS, some aspects of operations, progress reports on charging and control, VNET and networking as well as a general session.

March 1982 - Prime user Group at UMIST

Thursday 24/12/81 - Christmas Shutdown (IBM System) at 1600 hrs

Tuesday 29/12/81 - Computing Service (IBM System) reopens at 0800 hrs

Rutherford and Appleton Laboratories

FORUM

195 COMPUTER NEWSLETTER

Newsletter of the SERC Central Computing Facility

No. 18 December 1981

1. CHRISTMAS GREETINGS

This is the last issue of FORUM for 1981 and I would like to send Christmas greetings from the Computing Division to all our readers and users.

This year has been one of considerable change and, always, that tends to have adverse effects on the user service. However, there are clear signs that the front end service on the 3032 is improving. The move to CMS during the year has been quite dramatic and we are pleased that we have been able to sustain the good response on CMS despite the ever increasing user population. This has had a second advantage in that ELECTRIC performance has also been improved. The programme of installing multi user systems in university departments for interactive working is now just about complete and I anticipate that the major changes in this area are likely to be enhancements of existing systems. Bringing the funding of both the batch and interactive services together under the Central Computing Committee has allowed us to be rather more innovative in our enhancement programme. We are hoping to upgrade some of the GEC systems to the new 32-bit GEC 4090 and this will allow us to replace some of the 2050 workstations by newer GEC 4000 systems.

I anticipate that 1982 will also be a year of change. We are optimistic that some part of the plan for enhancing the front-end facilities and replacing the 360/195s will be achieved. On the network side, a number of new packet switching exchanges are being installed at major centres (such as London, Cambridge and Edinburgh) which will improve the overall performance of the network and provide greater rationalisation of leased lines. It is likely that some long term plan for a combined SERC/Computer Board network will be established.

F R A Hopgood

2. ADDITIONAL FREEDISK

A third disk has been added to the facility for short lived data sets. The proposal mentioned at the June representatives meeting (see FORUM 14) is now partially implemented. When creating a short lived data set, users may specify

```
DISP=(NEW,CATLG),VOL=REF=FREE,DSN=DEC.ID.EXAMPLE
```

and when subsequently using the data set

```
DISP=SHR,DSN=DEC.ID.EXAMPLE
```

It is important when using existing data sets to omit the VOL=REF=FREE clause. The reason is the definition of REF=FREE is time dependent. It will be changed according to the availability of space on the three disks USDSK1, RHEL08 and the newly created disk FREE03.

Please discontinue the use of data set names of the form USER.NOV for short lived data sets. They will cease to be legal after 1 August 1982.

At the time of writing, CMS accesses, ELECTRIC OS copies and FTP access still require explicit volume references. Some work has to be done to overcome this.

The new disk, FREE03, is a model 3350 equivalent. The older disks, USDSK1 and RHEL08 usually referred to as FREEDISK and ATLAS, are due to be copied to 3350s in the near future, hopefully by the time this article is printed.

3. IBM VS FORTRAN

It is now possible to run this compiler in a user's own CMS Machine. (FORUM 16 explained how to use it in CMSBATCH). The command FORTVS may be used in the same way as FORTGI i.e.

```
FORTVS ABC
```

will compile the source found in ABC FORTRAN to create an object module in ABC TEXT and a listing in ABC LISTING with a summary output coming to the user's terminal.

There is no further information available on the availability of optimization.

The compiler may only be used under CMS but the object modules may be used in the MVT system provided that they are linked with the FORTRAN library routines contained in SYS1.VFORTLIB.

4. NAG LIBRARY (Mark 8)

The latest version of the NAG library has been implemented and is to be installed in December. The load module and object module libraries for MVT will be SYS1.NAGLIB and SYS2.NAGLIB respectively. The NAGLIB TXTLIB available in CMS will be replaced at the same time. The Mark 7 versions will continue to be available for a short while as SYS1.NAGMK7 and SYS2.NAGMK7 in MVT and as ONAGLIB TXTLIB R in CMS. These will be removed early in the new year.

5. UNIT=INTERNAL

Recently there have been some changes to the mechanism for submitting jobs to HASP from a job running in the MVT batch. There are two side effects. A minor effect is that job submission does not occur under the new mechanism until all output has been 'printed'. If the job is routed to a workstation controlled by VNET, this in practice means as soon as the job ends because any queueing for printers etc affects VNET and not HASP. If the job is routed to a workstation controlled by HASP then any delay in printing the job will also delay the job submission. Clearly the conversion of workstations from HASP to VNET will reduce the impact of this.

The second effect is that, for the present, using the new mechanism it is not possible to use the internal reader from any job which produces FR80 output. The problem will be overcome when a new despool mechanism is introduced. Work is in progress on this but it is not possible to give a date when it will be introduced.

Any user who is seriously inconvenienced by the recent change should discuss the problem with the program advisory service. It is possible to force the old mechanism to be used, but it is not considered desirable to perpetuate it.

Many users may imagine that they never use the facility anyway. In fact the library cleanup mechanism is triggered by the submission of a job through the internal reader each time a user library expands into a new extent.

6. PACX

8 PACX ports have been transferred from ELECTRIC to CMS. This is in accordance with the plan to run down the ELECTRIC service as CMS use increases.

7. VM REFERENCE MANUAL

At last the new version of the VM Reference Manual has gone to the printers. The main changes are:

Section E This now describes EXEC2 as well as EXEC.

Section F This describes XEDIT instead of EDIT. No details of EDIT are included in the new manual.

Section G New section on VNET.

Section R Many new commands.

Section S New section, containing commands for 3270 full screens and magnetic tapes, which are not generally available. This section will only be included on request.

The material in Sections R and S is also covered in the HELP files. Copies of the individual chapters (A - G) and the index are available on USDOC 193 disk (read password RUSDOC), with filetype CHAPTER. These can be printed by you (remember to request carriage control using the CC option).

It is our intention to send copies of the new manual to all registered users as soon as they become available. This may take a little time.

Comments on the content and structure of the manual are always welcome and will help us get it right next time.

8. PATCHY AND HYDRA

PATCHY was upgraded on 23 November 1981 to version 4.04/8. A few changes to the procedures are in hand. The ALERT/NEWS files should be consulted for details.

Version 3.32/1 of HYDRA has been installed and is available now. The documentation lists for PATCHY and HYDRA have been combined. Documentation for the latest version of HYDRA was sent to all those on the combined list on 16 November 1981. Please contact June Scholes, RAL ext 272 if you have not received a copy and wish to receive the current and/or future documentation on PATCHY and HYDRA.

Please note that the older versions of HYDRA will be purged from the central computers early in 1982. Contact Barrie Whittaker, RAL ext 6674 if this will cause difficulties.

Up-to-date information on PATCHY and HYDRA is available on the central computers through the ELECTRIC files DOC=ALERT.PATCHY and ALERT.HYDRA and in CMS through NEWS PATCHY and NEWS HYDRA.

9. MACHINE COMPARISONS

We are often asked by potential grant holders how to convert time on their local machine to 360/195 hours. As an aid to conversion, the following figures are provided as a guide to the amount of processor time required for batch jobs. The ratios are derived from Central Computer and Telecommunications Agency (CCTA) synthetic benchmarks for single precision FORTRAN, manufacturers MIP (millions of instructions per second) figures and other relativities, each representing some rather artificial or arbitrary measurement conditions; hence, wide variations will be found from application to application. The figures should not be used for general comparisons of the different systems.

On examining the figures, you may find from your own performance information somewhat different ratios, especially as the numbers given are relative to the 360/195 which has a fairly wide performance range. We would be interested to learn of any such information, so that we might update our own tables.

SYSTEM	X 360/195
IBM 360/195	1
IBM 4331-1	0.03
IBM 4341-1	0.20
IBM 3033U	1.1
AMDAHL 470/V8	1.5
BURROUGHS B 7750	0.16
CDC CYBER 170-20	0.18
CDC 7600	2.0
CDC CYBER 205 (2 PIPE)	2.4(SCALAR) 42 (VECTOR LENGTH 1000)
CRAY 1	3.2(SCALAR) 20 (VECTOR LENGTH 64+)
CTL MODULAR 1	.008
DATA GENERAL ECLIPSE S/200	0.10
DEC KL10	0.24
DEC PDP 11/45 (FPP)	0.04
DEC VAX 11/780 (FPA)	0.24
GEC 4080	0.05
HARRIS S 500 (SAU)	0.16
H 3000-III	0.04
HONEYWELL 6/43 (SIP)	0.05
HONEYWELL 6080	0.16
ICL 1904S	0.04
ICL 2960 (VME/B)	0.08
ICL 2980 (FMDU)	0.72
ICL SYSTEM 4/72	0.06
MODCOMP CLASSIC	0.19
NORD 50	0.11
PERKIN ELMER 3220	0.11
PRIME 750	0.20
SEL 32/77 (HW FL PT)	0.12
SIEMENS 7748	0.06
UNIVAC 1108	0.16

10. ARGUMENT PASSING MECHANISM IN ICF COMPUTERS

The argument passing mechanism used by all the PRIME, GEC and DEC10 FORTRAN compilers is very simple. Arguments are all passed by reference, ie the address of each argument is passed to the subroutine, so no local storage is allocated for dimensioned or non-dimensioned variables. The subroutine accesses the original storage locations.

As with IBM FORTRAN, this allows the passing of the dimensions of an array as arguments which can be calculated at run time. The possibility of a particular variable being overwritten by a subroutine can be eliminated by passing it as an expression, for example by enclosing the variable in brackets. This will cause the address of the temporary variable used to hold the result of the expression to be passed to the subroutine, rather than the address of the variable itself. Of course, this should only be done with non-dimensioned variables!

11. SPEECH RECOGNITION WORKSHOP

A one-day speech recognition workshop is to be held at the Rutherford Appleton Laboratory early next year. Included in the programme is a demonstration of the LOGICA speech recogniser, LOGOS. Would anyone who wishes to attend please write to: Dr I D Benest, Rutherford Appleton Laboratory, Atlas Centre, Chilton, DIDCOT, Oxon, OX11 0QX for an application form.

12. INDEX

List of articles in FORUM 15, 16 and 17