Digital Computer Laboratory
Massachusetts Institute of Technology
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SUBJECT: S&EC GROUP COMPUTER FORMS

To: Scientific and Engineering Computation Group

From: K.J.Campbell

Date: July 30, 1953

Abstract: Instructions are provided to assist programmers in filling out the
           S&EC Performance and Post Mortem Requests. A description of the
           result sheets is also given.

I. PERFORMANCE REQUESTS (DL-324)

Problem No.

Each S&EC problem has been assigned a number. This number should appear on
every performance request.

Approved by

Before acceptance for a WWI run, each request must have the approval of the
S&EC Associated Staff Member assigned to the problem. The approval is for the
purpose of keeping the staff person up to date with the progress of the work as well
as to ensure proper completion of the performance request.

Date

The date of submission of the request should be filled in.

Submitted by

The name of the person submitting the request should appear here.

Office and Home Phones

We assume the liberty of contacting you in case of question if one or both
numbers are listed.

Rush Run

Before checking for a rush run the programmer should realize that the charging
rate for a rush request is double time plus 5 minutes (see E-484) i.e., if the run
takes 10 minutes, the total time deducted from the biweekly assignment is 25 minutes.

Short Run

Defined as not taking more than 5 minutes. A run of this classification is

taken off the computer shortly after the 5 minute limit, if it has not been completed by this time. Charging commences with the time one run is completed and preparation for the next run is made.

Long Run

The length of the run should be indicated.

Programmer Must be Present

If you wish to be present during the operation of your run, the performance may be delayed until a suitable time can be arranged with you by the computer coordinator.

At the start of the computer period the following sequence of runs is adhered to:

1. Rush runs
2. Short runs
3. Long runs

Program Stops Automatically on

Indicate the mode of stop--ex. si 0 or si 1.

Stop Manually after   Min.

This block is checked if you wish your problem stopped manually after a number of minutes. Mostly used for testing purposes.

AUXILIARY EQUIPMENT:

Direct Printer

Number of lines must be filled in.

Direct Punch

Number of feet of paper tape should be indicated.

Demonstration

This term is generalized to handle several situations: ex. scope display without having the camera attached, actual demonstration programs, etc.

Scope and Camera, No. Frames

The number of frames (pictures taken) should be listed.

Magnetic Drum

Groups 1 through 5 may be used, but need not be indicated on performance request.

Magnetic Tape

Checking this and filling in the information listed below this type of output will aid us in scheduling the use of magnetic tape.

Beside the unit no(s). used, the maximum number of feet used in the forward direction should be indicated. The final number of feet forward is determined by whether or not there is an automatic runback somewhere in the program. One word recorded on Magnetic tape occupies .077 inches of tape. (See M-2269).

Seconds Within Which Auxiliary Equipment Begins Operating

For each type of auxiliary equipment used, the number of seconds within which the equipment will be activated must be noted.

Instructions

The operating instructions must be very explicit since they are carried out word for word. Explanation of standard abbreviations for various instructions is explained in M-1930. To summarize briefly:

E	erase Electrostatic Storage
RI	press READ IN button
RS	press RESTART button after STOP ON sil
DB	direct basic conversion program
SA x	set PC RESET to x(octal) and press START OVER button
#___m_	place tape #___m_ in PETR (photo-electric tape reader)

example: E, 2340m3, RI, RS.   (this case is for a tape which has already been punched out in 556 form)

example: E, DB, RI, 2471ml, RS   (this case is a direct read-in for a tape which is still in standard flexowriter form)

The performance request is in two part form. One copy will be returned to the programmer after the run.

II. POST MORTEM INFORMATION (DL-694)

A post mortem is a typed or photographic recording of the contents of requested registers in electrostatic storage at the time of an alarm or other difficulty.

As a standard procedure post mortems should not be requested for the initial run. Note that the time used "post morteming" is charged to the problem.

Post mortems are available in either a printed form or as a photograph of storage.

One copy of the PM request should be submitted with the Performance Request and will be returned to the programmer after the run.

Available Post Mortems:

Delayed Print-out

Either octal or decimal storage addresses may be obtained for any of the

following: WWI Instructions, Octal Numbers, Decimal Fractions, Decimal Integers, Generalized Decimal Numbers, or Interpreted Instructions. The mode Number identifies the printout classification desired. The requested range of numbers must be in octal form initially; however, the mode no. determines the final printout form. Any number of ranges may be printed out with each range having any desired mode.

Scope

The available scope post mortems consist of one or two bank displays for the beginning or end of storage as octal fractions, WWI decimal instructions, WWI octal instruction, and interpreted instructions (see chart below).

In addition to these standard post mortems there is a Group 11 scope display of all of storage (see M-2265) which is given as a standard operational procedure when a program which has no other post mortem request stops because of an alarm or some other difficulty. This post mortem is in the form of octal fractions and restores ES to the state it was in when the alarm occurred. Any other PM may therefore be requested.

All scope post mortems have initial zero suppression.

POST MORTEMS

Type	Regs. Available (Octal)	Time
(DELAYED PRINTER)		
Octal Instructions	45-3777	2 minutes (+)*
Decimal Instructions	45-3777	2 minutes (+)*
Octal Fractions	45-3777	2 minutes (+)*
Decimal Fractions	45-3777	2 minutes (+)*
G.D.Numbers	40-1243 2040-3777	2 minutes (+)*
Interpreted Instructions	40-1350 2040-3777	2 minutes (+)*

   * Depending on the number of registers requested.

(SCOPE)

Lower One Bank Display

Octal Fractions	40-1647	46 seconds
WWI Decimal Instructions	40-1513	44 seconds
WWI Octal Instructions	40-1526	43 seconds
Interpreted Decimal Instructions	40-1462	45 seconds

Upper One Bank Display

Octal Fractions	226-2037	46 seconds
WWI Decimal Instructions	364-2037	44 seconds
WWI Octal Instructions	351-2037	43 seconds
Decimal Interpreted Instructions	415-2037	45 seconds

Type	Regs. Available	Time
Lower Two Bank Display		
Octal Fractions	40-3607	1 minute 42 seconds
WWI Decimal Instructions	40-3453	1 minute 38 seconds
WWI Octal Instructions	40-3466	1 minute 36 seconds
Decimal Interpreted Instructions	40-3422	1 minute 40 seconds
Upper Two Bank Display		
Octal Fractions	226-3777	1 minute 42 seconds
WWI Decimal Instructions	364-3777	1 minute 38 seconds
WWI Octal Instructions	351-3777	1 minute 36 seconds
Decimal Interpreted Instructions	415-3777	1 minute 40 seconds
Group 11 Storage Display	40-3777	1 minute 40 seconds

The PA (programmed arithmetic) post mortem is also available either as a part of the delayed printer post mortem or as a separate routine. It prints out the contents of pertinent registers in the PA:

Register	Contents	Former one bank position (octal)	Present two bank position (octal)
PC	Address of instruction being interpreted	2003	3743
PR	Instruction which is being interpreted	2031	3771
AR	Address of the register following the last executed isp or icp	2030	3770
MRA	Contents of the multiple register accumulator	2032-2034	3772-3774
CRN	Contents of storage location given by address of instruction being interpreted	----	----
i REG	Contents of the index register	2027	3767
n REG	Contents of the comparison register	2035	3775
BUFFER	Contents of buffer register	1776-2000	3736-3740

III. RESULT SHEET (DL-688)

A result sheet is returned to the programmer after the computer session. This sheet contains a time record (to be used in filling out the biweekly report form) of your program while on the computer. The pertinent register contents pertaining to each type of alarm are filled in at the time an alarm occurred.

One copy of any typed results of the program will be returned to the programmer after the run. If the scope and camera are used the negatives are available by 11 AM each day. If prints are needed they may be ordered at the time the negatives are viewed.

Signed: _K. J. Campbell_

K.J.Campbell

Approved: _J.D.Porter_

J.D.Porter

KJC:JDP:mm