

Digital Computer Laboratory  
Massachusetts Institute of Technology  
Cambridge 39, Massachusetts

SUBJECT: BIWEEKLY REPORT, NOVEMBER 11, 1956

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From: Scientific and Engineering Computation Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 447 coded programs were run on the time allocated to the Scientific and Engineering (S and EC) Group. These programs represent part of the work that has been done on 44 of the problems that have been accepted by the S and EC Group.

1.2 PROGRAMS and COMPUTER OPERATION

<u>Problem No.</u>	<u>Title</u>	<u>Minutes</u>
100	Comprehensive System of Service Routines	48.2
126 D.	Data Reduction	81.6
131	Special Problems (Staff Training, etc.)	37.2
141	S and EC Subroutine Study	11.1
193 L.	E.V. Problem for Propagation of E.M. Waves	135.8
199 N.	Compressible Flow in a Tube	18.2
203 D,N.	Response of a Building Under Dynamic Loading	180.4
204 N.	Exchange Integrals Between-Real Slater Orbitals	258.8
218 N.	Stage B for Diatomic Molecules	114.7
219	Linear Programming	43.7
225 B,N.	Neutron-Deuteron Scattering	108.4
226 D.	Circulation of the Atmosphere	294.1
231 B,N.	Reactor Runaway Prevention	1.2
253 N.	APW as Applied to Face- and Body-Centered Iron	94.4
257 C.	Horizontal Stabilizer Analysis	195.9
260 N.	Energy Levels of Diatomic Hydrides	14.0
264 C.	Optimization of Alternator Control System	4.7
274 N.	Multiple Scattering	10.9
278 N.	Energy Levels of Diatomic Hydrides LiH	123.8
288 N.	Atomic Wave Functions	170.5

300 L.	Tropospheric Propagation	266.5
309 B,N.	Pure and Impure Potassium Chloride Crystal	10.0
310 C.	Rocket Trajectory Calculations	4.4
312 L.	Error Analysis	3.0
317 C.	Stability Derivatives from Flight Test Data	32.3
327 L.	Prediction Analysis	180.9
329 N.	First Approximation Solution on Ore Body	26.4
337 N.	Nonlinear 2nd Order Diff. Eqs.	53.8
341 C.	Statistical and Dynamic Methods in Forecasting	241.9
350 D.	Computation of Variances and Covariances	19.8
354 D.	Response of a Single Story Concrete Building	4.1
364 C.	Blast Response of Rotor Blades	47.6
368 B,N.	Condensation in a Vertical Tube	9.4
369	Temperature Distribution in a Beam	101.6
372 B.	Design of Spherical Shell Segments	33.9
377 L.	Coverage Analysis	9.9
382		47.9s
384		36.9
385		26.4
386		14.0
388		4.2
391		9.7
393		16.9
394		23.4

### 1.3 Computer Time Statistics

The following indicates the distribution of WWI time allocated to the S and EC Group.

S and EC Programs	42 hours 19.2 minutes
Lincoln Programs	9 hours 56.1 minutes
Magnetic Tape Test	1 hour 0.0 minutes
Scope Calibration	14.1 minutes
PETR Test	23.4 minutes
Test Storage Check	7.9 minutes
Demonstrations (No. 131)	37.2 minutes
Total Time Logged	55 hours 14.5 minutes
Div. 6 Conversions, Inter-run Operations, etc.	12 hours 57.5 minutes
Total Time Assigned	69 hours 12.0 minutes
Usable Time, Percentage	98.55%
Number of Programs	447