Digital Computer Laboratory
Massachusetts Institute of Technology
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SUBJECT: BIWEEKLY REPORT, FEBRUARY 20, 1956

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From: Scientific and Engineering Computation Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 602 coded programs were run on the time allocated to the Scientific and Engineering (S&EC) Group. These programs represent part of the work that has been done on 58 of the problems that have been accepted by the S&EC Group.

1.2 Programs and Computer Operation

Problem No.	Title	Minutes
100	Comprehensive System of Service Routines	55.8
106 C.	MIT Seismic Project	57.2
122 N.	Coulomb Wave Functions	17.2
126 D.	Data Reduction	205.1
131	Special Problems (Staff Training, Demonstrations,etc.)	12.1
141	S&EC Subroutine Study	57.7
172 B,N.	Energy Bands in Graphite	55.1
179 C.	Transient Temperature of a Box-Type Beam	32.8
193 L.	Eigenvalue Problem for Propagation of Electromagnetic Waves	63.8
194 B,N.	Augmented Plane Wave Method as Applied to Sodium	51.3
203 D,N.	Response of a Building Under Dynamic Loading	4.6
216 C.	Ultrasonic Delay Lines	26.6
219	Linear Programming	48.1
226 D.	Circulation of the Atmosphere	10.6
231 B,N.	Reactor Runaway Prevention	31.3
241 B,N.	Transients in Distillation Columns	42.9
245 N.	Theory of Neutron Reactions	14.3

246	B,N.	Scattering From Oxygen	75.6
253	N.	APW as Applied to Face- and Body-Centered Iron	126.6
256	C.	WWI-ERA 1103 Translation Program	42.7
257	C.	Horizontal Stabilizer Analysis	64.9
260	N.	Energy Levels of Diatomic Hydrides	16.2
261	C.	Fourier Synthesis for Crystal Structures	134.3
262	N.	Evaluation of Two-center Molecular Integrals	169.8
266	A.	Calculations for the MIT Reactor	12.1
270	B.	Critical Mass Calculations	87.2
273	N.	Cosmic Ray Air Shower	31.9
274	N.	Multiple Scattering	16.0
275	B.	Buckling of Shallow Elastic Shells	174.2
278	N.	Energy Levels of Diatomic Hydrides LiH	88.4
288	N.	Atomic Wave Functions	188.0
290	N.	Polarizability Effects in Atoms and Molecules	45.0
293	C.	Rolling Bearings	12.9
300	L.	Tropospheric Propagation	32.2
306	D.	Spectral Analysis of Atmospheric Data	3.8
309	B,N.	Pure and Impure Potassium Chloride Crystal	44.4
312	L.	Error Analysis	78.2
314	C.	Factoring High Order Polynomials	38.4
315	C.	Torpedo Hit Distribution	116.1
317	C.	Stability Derivatives from Flight Test Data	29.6
318	C.	3D Aerodynamic Lead-Pursuit Study	19.7
322	B.	The Maximum Bubble Size	112.6
327	L.	Prediction Analysis	112.7
329	N.	First Approximation Solution on Ore Body	37.8
330	C.	Postfailure Response-Aircraft Structures	70.7
333	A.	Combustion Problem	31.6
334	C.	Parametric Study of Coupling and Damping	27.6
335	D.	Course 6.25, Fall 1955	2.5
336	C.	Pattern Identification	70.8
337	N.	Nonlinear 2nd Order Diff. Eqs.	50.7
341	C.	Statistical and Dynamic Methods in Forecasting	64.9
343	C.	Weather Prediction	35.0
344	B.	Dynamic Programming	38.3

345 B.	Matrix Multiplication	16.6
348 A.	Wave Propagation	58.8
349.	Solution of Partial Diff. Eq.	139.0
351 B.	Non-uniform Fuel Distribution	3.4
353 C.	Waiting Line-Constant Holding Time	3.9

1.3 Computer Time Statistics

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

Programs	54 hours, 59.5 minutes
Magnetic Drum Test	00.0 minutes
Magnetic Tape Test	55.7 minutes
Scope Calibration	23.6 minutes
PETR Test	32.8 minutes
Test Storage Check	9.4 minutes
Demonstrations (No. 131)	12.1 minutes
Total Time Logged	57 hours, 13.1 minutes
Div 6 Conversions, Inter-run Operations, etc.	21 hours, 40.1 minutes
Total Time Assigned	80 hours, 10.2 minutes
Usable Time, Percentage	98.39 %
Number of Programs	602