Digital Computer Laboratory
Massachusetts Institute of Technology
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SUBJECT: BIWEEKLY REPORT, FEBRUARY 6, 1956
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From: Scientific and Engineering Computation Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 551 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 55 of the problems that have been accepted by the S and EC Group.

1.2 Programs and Computer Operation

Problem No.	Title	Minutes
100	Comprehensive System of Service Routines	198.1
106 C.	MIT Seismic Project	75.9
122 N.	Coulomb Wave Functions	28.0
126 D.	Data Reduction	160.8
131	Special Problems (Staff Training, etc.)	49.1
141	S and EC Subroutine Study	33.7
155 N.	Synoptic Climatology	3.3
172 B,N	Overlap Integrals	94.4
179 C.	Transient temperature of a Box-Type Beam	17.2
193 L.	E.V. Problem for Propagation of E.M. Waves	42.8
194 B,N	Augmented Plane Wave Method (Sodium)	39.7
216 C.	Ultrasonic Delay Lines	1.9
219	Linear Programming	10.6
231 B,N.	Reactor Runaway Prevention	39.7
234 N.	Atomic Integrals	5.9
241 B,N.	Transients in Distillation Columns	67.0

231	B,N.	Reaction Runaway Prevention	39.7
234	N.	Atomic Integrals	5.9
241	B, N.	Transients in Distillation Columns	67.0
245	N.	Theory of Neutron Reactions	163.2
246	B,N.	Scattering From Oxygen	73.9
253	N.	APW as Applied to Face-and Body-Centered Iron	322.3
257	C.	Horizontal Stablizer Analysis	41.5
260	N.	Energy Levels of Diatomic Hydrides	67.9
261	C.	Fourier Synthesis for Crystal Structures	25.8
262	N.	Evaluation of Two-centered Molecular Integrals	69.6
266	A.	Calculations for the MIT Reactor	73.6
270	B.	Critical Mass Calculations	97.6
273	N.	Cosmic Ray Air Shower	16.3
274	N.	Multiple Scattering	218.1
275	B.	Buckling of Shallow Elastic Shells	136.5
278	N.	Energy Levels of Diatomic Hydrides LiH	6.7
285	N.	APW as Applied to Chromium Crystal	6.3
288	N.	Atomic Wave Functions	78.7
290	N.	Polarizability Effects in Atoms and Molecules	51.0
300	L.	Tropospheric Propagation	57.4
306	D.	Spectral Analysis of Atmospheric Data	10.6
309	B,N.	Pure and Impure Potassium Chloride Crystal	100.2
312	L.	Error Analysis	82.0
314	C.	Factoring High Order Polynomials	8.2
315	C.	Torpedo Hit Distribution	363.1
317		Stability Derivatives from Flight Test Data	26.9
322		The Maximum Bubble Size	59.5

327	L.	Prediction Analysis	95.7
332	C.	Game Theory Optimization	34.8
333	A.	Combustion Problem	2.4
334	C.	Parametric Study of Coupling and Damping	26.0
335	D.	Course 6.25 Fall 1955	1.1
336	C.	Pattern Identification	11.4
337	AN.	Nonlinear 2nd Order Diff. Eqs.	23.1
338	C.	Optimization of Ram-Air Cooling System	7.3
340	B,N.	Self Energy and Mass of the Polaron, Feynman Theory	69.1
341	C.	Statistical and Dynamic Methods in Forecasting	71.5
343	C.	Weather Prediction	51.1
344	B.	Dynamic Programming	40.1
345	B.	Matrix Multiplication	16.1
348	A.	Wave Propagation	16.0
349	.	Solution of Partial Differential Equations	32.3

L.3 Computer Time Statistics

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

Programs	57 hrs.	48.5 Min.
Magnetic Drum Test		1.5 Min.
Magnetic Tape Test	1 hr.	6.0 Min.
Scope Calibration		14.0 Min.
PETR Test		26.6 Min.
Test Storage Check		7.7 Min.
Demonstrations (No. 131)		49.1 Min.
Total Time Logged	60 hrs.	33.4 Min.
Div. 6 Conversions, Inter-run Operations, etc.	12 hrs.	51.5 Min.
Total Time Assigned	74 hrs.	33.9 Min.
Usuable Time, Percentage	98.46%	
Number of Programs	551	