Digital Computer Laboratory
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SUBJECT: BIWEEKLY REPORT, April 14, 1957

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From: Scientific and Engineering Computation Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 427 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 41 of the problems that have been accepted by the S and EC Group.

1.2 Programs and Computer Operation

Problem No.	Title	Minutes
100 Comp.	Comprehensive System of Service Routines	76.4
106 C.	MIT Seismic Project	26.4
126 D.	Data Reduction	142.6
131	Special Problems (Staff Training,etc.)	22.8
141	S and EC Subroutine Study	9.2
193 L.	E V. Problem for Propagation of E.M. Waves	202.9
194 B,N.	Augmented Plane Wave Method (Sodium)	434.9
203 D,N.	Response of a Building Under Dynamic Loading	54.0
253 N.	APW as Applied to Face- and Body-Centered Iron	112.4
256 C.	WWI-1103 Translation Program	19.1
257 C.	Horizontal Stabilizer Analysis	34.0
260 N.	Energy Levels of Diatomic Hydrides	6.9
261 C.	Fourier Synthesis for Crystal Structures	2.5
262 N.	Evaluation of Two-center Molecular Integrals	37.1
273 N.	Cosmic Ray Air Shower	153.7
278 N.	Energy Levels of Diatomic Hydrides LiH	457.2
285 N.	APW as Applied to Chromium Crystal	12.9
290 N.	Polarizability Effects in Atoms and Molecules	223.3
309 B,N.	Pure and Impure Potassium Chloride Crystal	.7
312 L.	Error Analysis	57.4
317 C.	Stability Derivatives from Flight Test Data	188.3
327 L.	Prediction Analysis	101.7
336 C.	Pattern Identification	81.4
337 N.	Nonlinear 2nd Order Diff. Eqs.	5.2
341 C.	Statistical and Dynamic Methods in Forecasting	74.7
360 C.	Dynamic Response of Shear Walls	7.9

361 B,N.	Growth of Fatigue Cracks	13.5
364 C.	Blast Response of Rotor Blades	35.2
380 B.	Switching Circuits	8.2
386 C.	Free Convection	31.9
387 C.	Determination of Velocity Potential	90.5
388 D.	Temperature Distribution Aircraft Generators	41.9
389 D.	Supersonic Flow of Air in a Tube	30.1
394 C.	Automatic Programming for Machine Tools	103.3
395 L.	Phase Error Calculation	19.6
400 C.	Temperature and Stress Response	30.0
403 B.	Transient Heat Transfer	10.3
404 B.	Core Optimization	110.1
405 B.	Fuel Composition in Nuclear Reactors	20.0
406 B.	Numerical Method of Maximizing or Minimizing an n dimension	2.0
409 C.	An Analytical Study of Bluff Bomb Trajectories	4.5

1.3 Computer Time Statistics

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

S and EC Programs	44 hrs.	52.3 min.
Lincoln Programs	6 hrs.	21.6 min.
Magnetic Tape Test		31.3 min.
Scope Calibration		9.2 min.
PETR Test		17.7 min.
Test Storage Check		6.8 min.
Demonstrations (No. 131)		22.8 min.
Total Time Logged	52 hrs.	59.6 min.
Div. 6 Conversions, Inter-run Operations, etc.	5 hrs.	1.4 min.
Total Time Assigned	59 hrs.	39.1 min.
Usable Time, Percentage	96.76%	
Number of Programs	427	