Digital Computer Laboratory
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SUBJECT: BIWEEKLY REPORT, May 12, 1957

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From: Scientific and Engineering Computation Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1   Introduction

During the past two weeks 517 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 46 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	108.9
106 C.	MIT Seismic Project	5.7
126 D.	Data Reduction	217.1
131	Special Problems (Staff Training, etc.)	24.0
193 L.	E.V. Problem for Propagation of E.M. Waves	170.4
194 B,N.	Augmented Plane Wave Method (Sodium)	219.5
203 D,N.	Response of a Building Under Dynamic Loading	49.2
245 N.	Theory of Neutron Reactions	89.7
253 N.	APW as Applied to Face- and Body-Centered Iron	59.5
257 C.	Horizontal Stabilizer Analysis	347.3
260 N.	Energy Levels of Diatomic Hydrides	7.6
262 N.	Evaluation of Two-Center Molecular Integrals	94.4
273 N.	Cosmic Ray Air Shower	187.7
274 N.	Multiple Scattering	14.8
278 N.	Energy Levels of Diatomic Hydrides LiH	169.2
285 N.	APW as Applied to Chromium Crystal	120.5
288 N.	Atomic Wave Functions	271.2
290 N.	Polarizability Effects in Atoms and Molecules	433.5
309 B,N.	Pure and Impure Potassium Chloride Crystal	300.0
312 L.	Error Analysis	50.0
317 C.	Stability Derivatives from Flight Test Data	200.0
327 L.	Prediction Analysis	152.8
336 C.	Pattern Identification	24.6
337 N.	Nonlinear 2nd Order Diff. Eqs.	25.3
341 C.	Statistical and Dynamic Methods in Forecasting	66.9
360 B.	Dynamic Response of Shear Walls	45.0

361 B,N.	Growth of Fatigue Cracks	6.8
364 C.	Blast Response of Rotor Blades	16.5
368 B,N.	Condensation in a Vertical Tube	49.0
377 L.	Coverage Analysis	220.3
380 B.	Switching Circuits	11.5
383 C.	Stokes Particle Velocities	2.3
386 C	Free Convection	20.0
387 C.	Determination of Velocity Potential	53.7
388 D.	Temperature Distribution Aircraft Generators	37.2
389 D.	Supersonic Flow of Air in a Tube	15.8
394 C.	Automatic Programming for Machine Tools	75.9
402 N.	Monte Carlo Inventory Control Study	2.6
403 B.	Transient Heat Transfer	33.2
404 B.	Core Optimization	161.0
405 B.	Fuel Composition in Nuclear Reactors	77.7
406 B.	Numerical Method of Maximizing or Minimizing an n Dimension	71.5
407 C.	Diffusion Boundary Layer	8.8
408 C.	Frequency Spectrum of Magnesium	15.6
409 C.	An Analytical Study of Bluff Bomb Trajectories	187.2
410 B.	S_2 Approximation for Flux Flattening	59.8

1.3 Computer Time Statistics

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

S and EC Programs	66 hrs.	3.7 min.
Lincoln Programs	9 hrs.	53.5 min.
Magnetic Tape Test		52.7 min.
Scope Calibration		7.7 min.
PETR Test		37.4 min.
Test Storage Check		6.3 min.
Demonstrations (no. 131)		24.0 min.
Total Time Logged	78 hrs.	7.2 min.
Div. 6 Conversion, Inter-run Operations, etc.	5 hrs.	52.6 min.
Total Time Assigned	85 hrs.	31.9 min.
Usable Time, Percentage	98.17%	
Number of Programs	517	