Digital Computer Laboratory
Massachusetts Institute of Technology
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SUBJECT: BIWEEKLY REPORT, June 27, 1955

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From: Scientific and Engineering Computation Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 520 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 53 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	408.9
120 B,N.	The Aerothermopressor	185.8
126 D.	Data Reduction	277.4
131	Special Problems (Staff Training,etc.)	80.4
132 D.	N. C. Milling Machine	15.3
141	S and EC Subroutine Study	194.1
155 N.	Synoptic Climatology	38.4
179 C.	Transient Temperature of a Box-Type Beam	5.5
193 L.	E.V. Problem for Propagation of E.M. Waves	39.3
194 B,N.	Augmented Plane Wave Method (Sodium)	5.6
198	Student Problems for SAC and TAC	2.6
203 D,N.	Response of a Building Under Dynamic Loading	94.5
212 B,N.	Dispersion Curves for Seismic Waves	102.3

217 N.	Atomic Wave Function and Energies	18.5
219	Linear Programming	17.7
224 N.	Vertical Velocity Fields	212.3
225 B,N.	Neutron-Deuteron Scattering	2.7
226 D.	Circulation of the Atmosphere	69.3
231 B,N.	Reactor Runaway Prevention	5.2
235 B,N.	Eigenvalues for a Spheroidal Square Well	136.0
236 C.	Transient Response of Aircraft to Heating	19.8
238 B,N.	Self-consistent Calculation of Nuclear Density	37.0
239 C.	Guidance and Control	16.3
241 B,N.	Transients in Distillation Columns	23.2
242 N.	Counting Structures of Relations	13.9
245 N.	Theory of Neutron Reactions	5.5
246 B,N.	Scattering From Oxygen	22.1
248 B.	Propane Vibrations	5.9
256 C.	WWI -1103 Translation Program	39.1
258 C.	Dynamic Analysis of an Aircraft Interceptor	63.2
259 L.	Ionosphere Computation	43.5
260 N.	Energy Levels of Diatomic Hydrides	14.0
261 C.	Fourier Synthesis for Crystal Structures	80.0
263 C.	Aircraft Pullup Flight Path	92.5
264 C.	Optimization of Alternator Control System	6.3
265 L.	Electron Diffusion in an Electromagnetic Field	68.5
266 A.	Calculations for the MIT Reactor	285.7
267 B.	NCMM Turbine Blade	6.5
269 C.	Analysis of Shear Wall Testing Machine	5.2

270 B.	Critical Mass Calculations	65.6
271 B.	Beam Splitting Technique	48.0
272 L.	General Raydist Solution	1.6
274 N.	Multiple Scattering	3.2
276 B,N	Martensitic Transformation in Stainless Steel	2.0
277 C.	Horizontal Stabilizer Study	14.3
279 D.	Queuing	9.4
285 N.	APW as Applied to Chromium Crystal	.6
293 C.	Rolling Bearings	16.8
295 C.	Electron Collision Frequency	12.4
296 C.	System Analysis	60.3
297 B.	Diffusion Boundary Layer	21.5
298 C.	Dipole Moments	1.3
299 C.	Heat Transfer in Turbulent Flow	10.0

1.3 Computer Time Statistics

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

Programs	49 hours, 6.6 minutes
Magnetic Drum Test	56.8 minutes
Magnetic Tape Test	61.9 minutes
Scope Calibration	10.2 minutes
PETR Test	31.5 minutes
Test Storage Check	9.8 minutes
Demonstrations (No.131)	1 hour ,20.4 minutes
Total Time Logged	53 hours,17.2 minutes
Div. 6 Conversions,Inter-run Operations, etc.	14 hours,49.3 minutes
Total Time Assigned	68 hours, 6.5 minutes
Usable Time, Percentage	99.86
Number of Programs	520