Digital Computer Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

SUBJECT: BIWEEKLY REPORT, JANUARY 9, 1956

To: Jay W. Forrester

From: Scientific and Engineering Computation Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 410 coded programs were run on the time allocated to the Scientific and Engineering (S&EC) Group. These programs represent part of the wrok that has been done on 48 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	48.3
106 C.	MIT Seismic Project	19.7
126 D.	Data Reduction	124.2
131	Special Problems (Staff Training, Demonstrations, etc)	20.3
141	S&EC Subroutine Study	1.4
155 N.	Synoptic Climatology	105.1
172 B, N.	Energy Bands in Graphite	.2
179 C.	Transient Temperature of a Box-Type Beam	16.3
193 L.	E.V. Problem for Propagation of E.M. Waves	44.9
194 B, N.	Augmented Plane Wave Method (Sodium)	18.1
203 D, N.	Response of a Building Under Dynamic Loading	5.8
219	Linear Programming	79.5
225 B, N.	Neutron-Deuteron Scattering	8.2
226 D.	Circulation of the Atmosphere	14.6
231 B, N.	Reactor Runaway Prevention	23.4
236 C.	Transient Response of Aircraft to Heating	104.4
241 B, N.	Transients in Distillation Columns	23.2

245	M.	Theory of Neutron Reactions	119.2
246	B,M.	Scattering From Oxygen	138.3
253	M.	APW as Applied to Face- and Body-Centered Iron	59.8
257	C.	Horizontal Stabilizer Analysis	17.9
261	C.	Fourier Synthesis for Crystal Structures	96.8
262	N.	Evaluation of Two-center Molecular Integrals	62.9
264	C.	Optimization of Alternator Control System	385.1
266	A.	Calculations for the MIT Reactor	11.7
270	B.	Critical Mass Calculations	113.8
272	L.	General Raydist Solution	78.3
275	B.	Buckling of Shallow Elastic Shells	29.6
285	N.	APW as Applied to Chromium Crystal	19.9
288	N.	Atomic Wave Functions	42.8
290	N.	Polarizability Effects in Atoms and Molecules	100.7
293	C.	Rolling Bearings	38.5
309	B,N.	Pure and Impure Potassium Chloride Crystal	57.9
312	L.	Error Analysis	340.4
315	C.	Torpedo Hit Distribution	61.1
318	C.	3D Aerodynamic Lead Pursuit Study	39.6
320	B,N.	Moment of Inertia of a Spheroidal Nucleus	18.3
322	B.	The Maximum Bubble Size	56.4
325	B.	Diffusion Equation	213.4
327	L.	Prediction Analysis	28.5
329	A.	First Approximation Solution on Ore Body	8.7
330	C.	Postfailure Response of Aircraft Structures Subjected to Blast Loading	15.6
332	C.	Game Theory Optimization	38.6
333	A.	Combustion Problem	91.3
334	C.	Parametric Study of Coupling and Damping	21.2
335	D.	Course 6.25 Fall 1955	6.7
338	C.	Optimization of Ram-Air Cooling Systems	3.1
339	A.	Numerical Treatment of a Fourth Order Parabolic Partial Differential Equation	2.7

1.3 Computer Time Statistics

The following indicates the distribution of MWI time allocated

to the S&EC Group.

Programs	43 hours, 29.6 minutes
Magnetic Drum Test	2.2 minutes
Magnetic Tape Test	54.0 minutes
Scope Calibration	9.6 minutes
PETR Test	16.2 minutes
Test Storage Check	8.2 minutes
Demonstrations (No. 131)	20.3 minutes
Total Time Logged	45 hours, 19.6 minutes
Inter-run Operations, etc.	9 hours, 52.2 minutes
Total Time Assigned	55 hours, 44.8 minutes
Usable Time, Percentage	99.01%
Number of Programs	410

2. LIBRARY ACCESSIONS LIST

DCL-101	Iterative Solution of Linear Systems Having Sparse Matrices	M.D.McIlroy
DCL-105	Tic Tac Toe Playing Routine	A.Zabludowsky
DCL-113	Generalized NIM Playing Routine	A. Zabludowsky
DCL-115	Function Evaluation Subroutines for Real-Time Parallel Operation	M. Watkins
DCL-117	Flad Post-Mortems and ff Tapes	M. Weinstein

Copies of the above are available from Mrs. Thorndike in the S&EC Group Library, Barta Building, 111.