Digital Computer Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

SUBJECT: BIWEEKLY REPORT, JULY 25, 1954

To: Jay W. Forrester

From: Scientific and Engineering Computation Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 402 coded programs were run on the time allocated to the Scientific and Engineering Computation (S&EC) Group. These programs represent part of the work that has been carried on in 32 of the problems that have been accepted by the S&EC Group.

Six new problems (195, 196, 197, 199, 200, and 201) were initiated during this period. Descriptions for each of these will be provided in the progress report that covers the period July 12 through August 8.

Preparations are being made for the summer session course 6.532 on advanced coding techniques for digital computers. This course will be conducted by Professor C. W. Adams during the week of August 2-6.

After July 19, 1954 reports issued by the Scientific and Engineering Computation Group will be designated by the three letter combination DCL. Previously such reports appeared in the R-, E-, and M- series or as bulletin board memoranda. Lists of the new DCL- series will appear in the S&EC progress reports.

1.2 Programs and Computer Operation

Problem No.	Title	WWI Time
100	Comprehensive System of Service Routines	729 minutes
106 C.	MIT Seismic Project	28 minutes
107 C.	(a) Autocorrelation and (b) Fourier Transform, Evaluate Integrals	53 minutes
120 D.	The Aerothermopressor	97 minutes
122 B.	Coulomb Wave Functions	82 minutes
126 C.	Data Reduction	145 minutes

Problem No.	Title	WWI Time
131	Special Problems (staff training, demonstrations, etc.)	59 minutes
132 C.	Subroutines for the Numerically Controlled Milling Machine	18 minutes
141	S&EC Subroutine Study	16 minutes
147 C.	Energy Bands in Crystals	1360 minutes
155 D.	Synoptic Climatology	76 minutes
159 D.	Water Use in a Hydroelectric System	62 minutes
166 C.	Construction and Testing of a Delta-Wing Flutter Model	147 minutes
167 D.	Products of Batch Distillations with Holdup	63 minutes
169 B.	Utilizing a General Purpose Digital Computer in Switching-Circuit Design	20 minutes
172 B.	Overlap Integrals of Molecular and Crystal Physics	125 minutes
173	Course 6.537 Digital Computer Application Practice	10 minutes
175 C.	Impurity Levels in Crystals	600 minutes
180 B.	Crosscorrelation of Blast Furnace Input-Output Data	5 minutes
181 C.	Perturbed Coulomb Wave Functions	31 minutes
183 D.	Blast Response of Aircraft	119 minutes
184 D.	Scattering of Electrons from Hydrogen	33 minutes
185 B.	A Scale of Turbulence	97 minutes
192 D.	Frequency and Phase Spectrum Analysis of Seismograms	22 minutes
193 C.	Eigenvalue problem for propagation of E. M. Waves	29 minutes
194 B.	An Augmented Plane Wave Method As Applied to Sodium	591 minutes
195 C.	Intestinal Mobility	37 minutes
196	Single Address Computer	7 minutes
197	Three Address Computer	265 minutes
199 C.	Laminar Boundary Layer of a Steady, Compressible Flow in the Entrance Region of a Tube	36 minutes
200 C.	A Study of Recurrent Events	18 minutes
201 C.	Study of the Ammonia Molecule	43 minutes

1.3 Computer Time Statistics

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

Programs	82 hours, 44 minutes
Conversions	1 hour, 27 minutes
Magnetic Drum Test	47 minutes
Magnetic Tape Test	89 minutes
Scope Calibration	39 minutes
Demonstrations (#131)	59 minutes
Total Time Used	88 hours, 5 minutes
Total Time Assigned	93 hours, 11 minutes
Usable Time, Percentage	94.4%
Number of Programs Run	402

2. COMPUTER ENGINEERING

2.1 WWI System Operation

(A. J. Roberts, L. L. Holmes)

Computer reliability continues to be good.

The "divide control" panel has been modified and work is proceeding on "multiply-shift-control." With the completion of these jobs the arithmetic element should be in close to final form.

Recent measurements on the start and stop times of the magnetic-tape units indicate the need for immediate adjustments to the units. It is likely that one unit will have to be placed in a "spare" capacity in order to facilitate maintenance.

2.2 Terminal Equipment

2.21 Magnetic Drums (H. L. Ziegler)

Installation of the new test setup is progressing satisfactorily except for procurement of a few items. Chief among these is a satisfactory circuit-selecting switch for the marginal-checking generator.

The d-c power supplies are in place and nearly wired. Wiring of the test panel will begin during the coming week if the panel arrives as scheduled.

Extension of the monitor system to include groups 2 and 3 of the buffer drum is in the planning stage. There are several alternative ways of doing this and, as yet, no final decision as to which is best has been made.

3. ADMINISTRATION AND PERSONNEL

Staff Termination (J. C. Proctor); Terminated Non-Staff

Robert Pfaff

Thomas Kee
Robert Martin

New Non-Staff (R. A. Osborne)

John Ackley, an MIT student, has returned to Lincoln to work for Group 64.

Mary Paradiso is a temporary clerk working in the Materials Requirement Office.

Transferred Non-Staff

Russel Kraynick has been transferred to Division 1, Group 12.
James Mahoney has been transferred to Project 6595.

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