

~~CONFIDENTIAL~~  
UNCLASSIFIED

Memorandum M-2221

Page 1 of 3

Digital Computer Laboratory  
Massachusetts Institute of Technology  
Cambridge 39, Massachusetts

CLASSIFICATION CHANGED TO:  
Auth: DD 254  
By: R.R. Everett  
Date: 2-1-60

SUBJECT: SUMMARY OF MIT - IBM COLLABORATION, April 28 through  
May 30, 1953 inclusive

To: J. W. Forrester, R. R. Everett, H. Fahnestock, C. R. Wieser,  
N. H. Taylor, D. R. Brown, S. H. Dodd, P. Youtz

From: A. P. Kromer

Date: June 8, 1953

Abstract: This interval is the first month in which IBM is operating under prime contract with the Air Force. The Lincoln Subcontract has been extended to July 31, 1953 to permit acquisition of certain items of test equipment. Collaboration on engineering work and design has continued in the same way as during the Lincoln Subcontract.

Engineering Visits

IBM people working on the project spent 144 man days at MIT in Cambridge. This is in addition to IBM's participation in several joint meetings at their office in Hartford, Connecticut and with component manufacturers. During this interval MIT personnel spent 36 man days at IBM's Poughkeepsie Laboratory.

Exchange of Publications

During this interval we have forwarded to IBM: 37 M-Memos, 7 E-Notes, miscellaneous trip and meeting reports, time schedules, drawings and standards sheets. Also certain government standards which have bearing on the development work being done were forwarded to IBM.

We have received from IBM a comprehensive report summarizing the work done by IBM under the Lincoln Subcontract. In addition, eight reports covering the joint input-output meetings, basic circuits meeting, a proposed input-output system, diode protection and biweekly reports.

General Comments

Development work on the arithmetic element and control section of the machine has been continued by the engineering group at IBM. The previously reported specifications covering circuits and logic for this section of the machine are serving as the basis for the work being done at Poughkeepsie. Continuous liaison with this work is being maintained by Jack Jacobs' group through the medium of having a full-time engineering representative temporarily stationed at Poughkeepsie.

LIN. LAB. DIV. 6  
DOCUMENT ROOM  
DO NOT REMOVE  
FROM  
THIS ROOM

~~CONFIDENTIAL~~  
UNCLASSIFIED  
SECURITY INFORMATION

~~CONFIDENTIAL~~  
UNCLASSIFIED

A group was set up to study and prepare recommendations for the general physical layout and arrangement of the arithmetic element and control section of the machine. Two joint meetings were held at Hartford to review the work of this committee. As a result of this study it has been generally agreed that this portion of the machine will be laid out with digit rows running horizontally and registers running vertically (similar to MTC arrangement). Standard type pluggable units will be used. Registers will be arranged so that signal paths will be as short as practical. Actual transfer of signals between registers, i.e., lead out gates vs. lead in gates, is being studied further. The layout will include space for possible later addition of a check register and two additional index registers. It will also provide additional unused tube positions in all registers to permit circuits to be added later if found necessary.

The study of in-out terminal equipment has been continued, and four meetings of the combined IBM-MIT engineering groups were held during the period. Three of these were at Hartford, Connecticut, and one at Cambridge. In addition to discussing various phases of the problem and the equipment required to handle each, the group has established July 1 as a date at which time study of certain aspects of the problem must be completed, and the release of firm specifications for various pieces of in-out equipment must start.

Design work for the physical frame of the standard plug-in unit has been continuing, but at a relatively slow level of activity, in view of the general discussion regarding machine layout referred to above. Based on the tentative conclusions of this work, design of a plug-in unit having six tubes has been started at IBM. Ultimate designs for a four tube and a nine tube plug-in unit are also being considered. During the next month it is expected that decisions will be reached regarding which of these three plug-in units will be standardized for use in the machine.

Activity in connection with establishing standard components for use in the design has continued. The organization of a central standards committee with co-chairmen at IBM and MIT has also been established. This central committee will guide the work of six sub-committees working in the fields of electronic components, mechanical components, basic circuits, mechanical design, drafting and materials and processes.

Requests were forwarded to IBM asking them to undertake development work on the magnetic drums and associated circuitry that will be required for WWII, and for them to initiate a proposed program of research and development work on ferrite cores. In this latter field it was suggested that principal activity be concerned with the improvement of manufacturing know-how and quality control in the interests of increased uniformity of the product.

UNCLASSIFIED

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~  
UNCLASSIFIED

Memorandum M-2221

Page 3 of 3

IBM has stationed a full time engineer at Cambridge to work with Group 61 in connection with setting up and the application of the Cape Cod system.

The number of IBM personnel of staff level assigned to the Project was approximately 85 at the end of the period.

Signed: Arthur P. Kromer  
Arthur P. Kromer

Approved: Norman H. Taylor  
Norman H. Taylor

APK/gn

UNCLASSIFIED

~~CONFIDENTIAL~~