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Memorandum M-1780

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

Digital Computer Laboratory  
Massachusetts Institute of Technology  
Cambridge 39, Massachusetts

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SUBJECT: SUMMARY OF IBM - MIT COLLABORATION  
December 1, 1952 to December 31, 1952 inclusive

To: J. W. Forrester, R. R. Everett, H. Bahner, R. Wieser  
N. H. Taylor, D. R. Brown, S. H. Gold, F. Rautz

From: A. P. Kromer

Date: January 5, 1953

Abstract: The second month of the period covered by the MIT sub-contract has seen the continuation of discussions between engineering representatives of IBM and MIT to further acquaint the former organization with the Air Defense System problem.

On December 5, 1952 the Lincoln Project Subcontract No. 20 was signed by both companies.

Engineering Visits

The fourteen IBM people assigned full time to the project spent a total of 125 man days at the Digital Computer Laboratory. Because of the holiday season, most of this activity was concentrated in the first three weeks of the month.

In addition to the engineering discussions, a series of four Navy and G.O.C. movie film showings were held to further amplify Air Defense operations.

Additional incidental visits were made to our Laboratory by IBM personnel concerned with contractual matters, and other engineers (drawn from their staff) to discuss specific problems regarding design of a magnetic core testing machine, design of spring contacts and standardization of components.

During the above period, MIT personnel spent six man days at IBM laboratories, including a visit to the Watson Laboratory at New York City to review the mechanical design and packaging employed on the NORC Computer under development at that location.

Exchange of Publications

We have continued to furnish copies of current publications of this Laboratory to provide background information for the project. During the period the material sent comprised: 61 M-Memos, 5 E-Notes, 4 E-Reports, 2 Theses and miscellaneous drawings.

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In return, we received the initial lot of published material from IBM during this period. This material comprised: 3 reports covering the magnetic matrix switch and magnetic cores, 7 covering magnetic drums, 1 covering prototype equipment and 1 covering the IBM-MIT tube-production study trip. The material received from IBM is listed with our Laboratory Library where a charge-out record will be maintained. Thus, this data will be available upon requisition to any member of the Laboratory interested in seeing it.

#### General Comments

Considerable attention has been given to the application of IBM punched card equipment to the MTC Computer, and purchase requisitions have been issued for a card reader and punch of the type used on the IBM 701 Computer. It has been decided not to procure a high speed alphabetic printer for MTC, but instead to use an IBM cardtype document writer. This decision was made because the high speed printer would not be of any value in connection with the testing of the magnetic memory, the principle reason for constructing MTC. Upon completion of this work, it may be decided to procure a high speed printer and use it with MTC in order to acquaint the personnel of this Laboratory with the operation of this particular machine and thus permit consideration for its use in the Whirlwind II system. IBM engineers have concurred with our people in reaching these decisions.

Specific engineering tasks worked on by the various IBM engineers have included studies of logic, programs and orders for Whirlwind II; basic circuits and development of a procedure for establishing the performance reliability of these circuits; magnetic circuitry in addition to the application of cores to the internal storage memory of the machine; and in-out equipment, particularly drums. In connection with this latter subject, several IBM people visited Lexington Laboratory to gain information from the group located there who are working on SDV and coordinate conversion problems.

In response to the request of ARDC, a study of the cost of an Air Defense System as outlined in the draft of Technical Manual No. 20 (issued Dec. 1, 1952) is being made. IBM people have participated in the preparation of much of the information contained in this study, even though the data will be released as an MIT estimate. Work on this subject has been of considerable assistance in bringing to the attention of some of the key people in the IBM group the full scope of the work to be done during the next few years.

The initial quantity of parts for IBM 701 type plug-in units to be used in connection with development work on an arithmetic element has been received.

Signed: 

Arthur P. Kromer

Approved: 

Norman H. Taylor

APK/mmt

cc: J. W. West

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