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Memorandum M-1817

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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 IBM - MIT COLLABORATION  
January 1, 1953 to January 31, 1953 inclusive

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

From: A. P. Kromer

Date: February 3, 1953

Abstract: The third month of the interval covered by the Subcontract between MIT and IBM has continued discussions regarding engineering aspects of the Air Defense problem. Principal among these has been the proposal made by IBM concerning the design of an arithmetic element for Whirlwind II. Subsequent discussions have resulted in tentative decisions to have a 32-bit word length, with the arithmetic element capable of working as a single unit or split so that it can work on two 16-bit words simultaneously.

Engineering Visits

IBM people assigned to this project spent a total of 37 man days at the Digital Computer Laboratory during the month. Besides the time spent at the Laboratory, a group of 7 IBM people visited the Truro Field Station to become acquainted with the existing Air Defense procedures, and to witness a demonstration of the quick-fix experimental work being carried on there.

The first of a series of periodic meetings was held at Hartford, Conn. This was attended by 15 MIT people and 13 IBM people for the purpose of having summary reports presented to the group covering the status of activity on most all phases of the project on which work is being done. It is felt that the exchange of information at meetings such as this will aid all groups by having them acquainted with the work being done by others.

A joint visit of IBM and MIT personnel was made to the Signal Corps Squire Laboratory to discuss the work being done there in connection with standardization and improvement in reliability of electronic apparatus components. Additional work in this field is contemplated with Navy laboratories as well as industry itself.

During the above period MIT personnel spent a total of 11 man days at IBM Poughkeepsie Laboratories.

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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: 28 M-Memos, 16 E-Notes, 2 R-Reports, Lincoln Technical Report No. 8, 10 Copies TM-20, and miscellaneous drawings and standards sheets.

We have received 8 reports from IBM covering a proposal for an arithmetic element, circuit standardization and reliability, display generation, etc.

Since the end of January represents completion of three months of the Sub-contract, IBM has started to prepare the report covering requirements of a computer and related terminal equipment for the Air Defense application as required by the Contract.

General Comments

The work done concerning the logical design of the arithmetic element for Whirlwind II has resulted in tentative decisions to have the machine capable of operating either as a single unit having a 32-bit word length or as a split unit with two 16-bit word lengths being handled simultaneously. Significant increase in the number of operations that can be performed in a given period of time will be realized with this arrangement, while at the same time, only a very small amount of additional equipment will be required. Complete information regarding this will be covered in a separate report.

In connection with display generation, IBM people contacted representatives of Division 2 and Division 3 at Lincoln who are working on various types of displays and presentation.

Initial discussions were held with the IBM people who will be concerned with mechanical design and packaging of the equipment. These covered in general, the overall philosophy of mechanical design, size and appearance of major assembled units, design of a pluggable unit, development of drafting standards, etc.

The number of IBM persons assigned to the project has been increased during the month. The total is now 26.

Signed: \_\_\_\_\_

*Arthur P. Kromer*  
Arthur P. Kromer

Approved: \_\_\_\_\_

*NHT*  
Norman H. Taylor

APK/mmt

CC: J. M. West

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