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Memorandum M-2406

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Division 6 - Lincoln Laboratory  
Massachusetts Institute of Technology  
Cambridge 39, Massachusetts

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By: R R Everett  
Date: 2-1-60

SUBJECT: SUMMARY OF MIT-IBM COLLABORATION, August 1 through August 31, 1953

TO: J. W. Forrester, R. R. Everett, J. C. Proctor, C. R. Wieser,  
N. H. Taylor, D. R. Brown, S. H. Dodd, P. Yutz

FROM: A. P. Kromer

DATE: September 11, 1953

ABSTRACT: The continued engineering work on AN/FSQ-7 equipment during this period has covered considerable activity in the fields of standardization on components, materials, etc.; circuits and vacuum tubes; electrical design of arithmetic element has proceeded, as well as logical design for the drum system.

Engineering Visits

IBM people working on the project spent approximately 66 mandays at Lincoln Laboratory, Cambridge, while MIT people spent a total of approximately 57 mandays at IBM High Street Laboratory, Poughkeepsie.

(Note: Period of August includes one week during which IBM was shut down for vacation.)

Exchange of Publications

During this period we have forwarded to IBM 29 M-Notes, 8 E-Notes, plus additional copies of M and E Notes which were previously transmitted, miscellaneous drawings and standards book sheets.

We have received from IBM 3 IM-Notes, 5 H-Notes and 1 Project High Biweekly Report.

General Comments

The prototype arithmetic element (5 digit) was operating as of the end of this period. It is planned to make studies of the margins available in the various circuits during the coming weeks. Drafting design and layout work on the plug-in units for the two AN/FSQ-7 models indicated that these units are not sufficiently rigid, and some re-design work must be undertaken. If this re-design seriously affects the physical dimensions of the plug-in unit, it may mean re-doing the design work completed to date for the racks and bays into which these plug-in units will be assembled.

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General Comments (Continued)

The method of wiring the panels into which the plug-in units will be assembled has also been studied, but no conclusions reached regarding this matter.

Work on the logical design of the drum systems has proceeded up to the point where it is now generally established that there will be six physical drum units, one for an input buffer, another as an output buffer, another as an auxiliary drum, two combined display auxiliary drums, and a sixth display drum. The drums in general will each have six fields. The logic for the input buffer drum is further advanced than any of the others as of the end of this period.

To strengthen the activity on display for the system, additional personnel was added to this phase of the activity in Group 62, and a well-coordinated program regarding the activity to be handled here and at IBM has been worked out between the two groups of people involved in display work. Parallel study will be conducted covering the use of the Charactron and one other mode of display presentation. This dual activity will be evaluated during the latter part of October, and a decision reached at that time regarding the single system which will be adopted for use in the AN/FSQ-7.

The activity regarding standardization for components, parts, materials, processes, drafting, circuits, was at a high peak during the month of August. Work was started at IBM on the preparation of purchase specifications so that actual ordering of parts for the two prototype models could be started.

A review of the activity covered in Project Grind was held about the middle of the month, which indicated that in general work was proceeding satisfactorily on all phases of the development covered by the previous Project Grind discussions. At this review meeting a presentation covering the use of etched wiring for circuits in the plug-in unit was presented, along with a model flip-flop circuit which had been prepared at MIT. Based on this model, full agreement was reached that etched wiring would be used to a large extent in the AN/FSQ-7, and IBM has assigned several people to lay out circuits and work on the preparation of models for the more commonly used circuits in the arithmetic element.

Representatives of IBM engineering and contract departments accompanied representatives from the Lincoln organization to a conference with Air Defense Command at which the question of setting up an Air Division (Sector) with Transition System was discussed.

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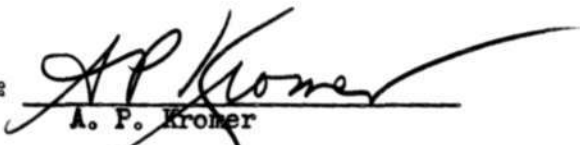
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General Comments (Continued)

IBM received the request for quotation from Air Material Command (AMC) covering the work to be done on the contract for the remainder of the development and construction of the two prototype models. They also received a letter-contract which would be made effective September 1 and cover them for the period of time required for completion of negotiations regarding the final contract. It is expected that this letter-contract would be agreed to by both parties so that no delay would be encountered at September 1 when the present prime contract IBM holds with AFCRC will expire. The AFCRC contract has been amended to allow for long-term procurement of certain electronic component items.

The number of IBM persons of staff level assigned to the project as of the end of the period was 164, with an additional 100 administrative and non-professional persons.

Signed:

  
A. P. Kromer

Approved:

  
N. H. Taylor

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