

J. Griffith
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COMPANY CONFIDENTIAL

Link Exchange Memo No. 5

Pre-requisites for Detailed Definition of Exchange

The first pass at the definition of the Exchange for medium and low speed units has been completed and the process of evaluation, modification and revision is underway. By January 1, 1957, we expect to have the complete specifications for this machine.

To complete the specifications and define the operational characteristics of the Exchange, it is necessary that those areas of the system which influence the design of the Exchange be clearly defined. Those areas include.

- 1) The memory word size.
- 2) The specifications of the memory input-output bus system and the organization of the memory.
- 3) The organization of the input-output system ; i. e. , what units constitute the standard complement of peripheral and terminal equipment for the system.
- 4) The general specifications of all medium speed units (500 characters per second to 15,000 characters per second), that constitute the standard complement of peripheral equipment of the system.

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- 5) The general specifications of all low-speed units (below 500 characters per second) that constitute the standard complement of low speed units for the system.
- 6) The specifications for simultaneous operation of Input and Output equipment.
- 7) The general specifications of the junior RAM and whatever tapes, other than Hi-Speed or 727, that is to be included in the system. For reasons of efficiency, economy and uniformity, it is desirable that these devices display a good degree of compatibility with either the high speed or medium and low speed areas of the I/O system to avoid the necessity of providing completely different Exchange facilities for them or for each of them. It should be noted that the proposed Exchange for medium and low speed units cannot accommodate the proposed SWIFT tape or the tentative high capacity commercial RAM (which has been offered as the STRETCH junior RAM) with the same level of performance as it can attain with the complement of peripheral equipment with a character rate below 15K p. If it is finally decided that the proposed medium and low speed Exchange facilities be extended to accommodate this tape

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and junior RAM, considerable modifications are anticipated.

- 8) A decision must be reached as to whether a single parity check or a single error correcting code be used in the medium and low speed I/O area/
- 9) The specifications for communication between the Exchange and the computer.

Although it is not likely that the specifications for the High Speed Tape will be available at any early date, it is hoped that an early decision will be reached on the tentative specifications for the High Speed RAM and Junior RAM. If, from these, specifications for the High Speed Exchange requirements can be tentatively decided, we will be better able to coordinate the overall Exchange effort.

Definition of the medium speed devices seems to be progressing well. However, while the areas mentioned above are still in a speculative state, it will not be possible to define in detail the Exchange system. In order to realize the completion of the various phases of the development of the system on the contemplated schedule, it is necessary that these questions be resolved at an early date.

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H. K. Wild
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