WHQ | Mr. B. O. Evans | San Jose Laboratory

Proposal for STRETCH-RAM | March 19, 1956

The proposal for a RAM unit to serve as auxiliary memory for STRETCH is attached to this letter. The cost and time estimates for this proposal are as follows:

1. The total cost of the advanced development program, including an advanced development prototype, is from $350,000 to $500,000.

2. The time for this program is 2-1/2 years.

3. The amount needed for 1956 is $150,000.

4. The unit cost of the RAM files would be from $40,000 to $50,000 in quantities of 10 to 20. This figure represents the manufacturing cost only and does not include product engineering expense, i.e., engineering costs at the product design level.

R. L. Haug

RLH:jd
Att.
cc: Mr. N. Edwards
Mr. J. A. Haddad
Mr. R. B. Johnson

A Proposal for STRETCH RAM

This proposal is for a RAM unit to be used as auxiliary memory for STRETCH. The overall structure and organization is in essence that described in "A Proposal for High-Performance Magnetic Disk Storage Machines", Model II, dated December 14, 1955. It differs from this in: physical size, speed, and in the binary dimensions (tracks per disk side, words per block, etc.). The specifications are the following:

I Two logical disk arrays, although they may be physically together. Writing in one may be simultaneous with reading the other or vice versa.

II Each logical array is composed of 33 (or 34, if required) disks.

III Two groups of 66 (or 68) gliding heads will be mounted on each array but each one will be restricted to operate on either the odd-numbered or even-numbered tracks.

IV The breakdown of the mode of storage is the following:

A. A work of 66 bits is spread "broadside" across the disk array: that is, the word is read in parallel through the 66 heads.

B. Four blocks of words distributed circumferentially around the disk on any one track location. The blocks are separated by four 4-bit gaps.

C. 128 tracks per disk.

D. 2048 words per block.

V The total capacity, in words, is the product of IV, B times C times D equal to 1,048,576 words in each array.

VI The magnetic bit densities to be used are:

A. 250 bits per inch circumferential density.
B. 40 tracks per inch radial density.

VII The pertinent disk dimensions are:

A. 5.23 inches inner track radius
B. 8.40 inches outer track radius
C. Actual outside disk diameter, including area of landing strip, approximately 18 inches.
D. Axial disk density approximately 4 per inch.

VIII The frequencies are: (approximately)

A. 3600 R. P. M. disk rotation
B. 480 K. C. bit frequency
C. 32 megacycle total bits per second

IX The access will be a swinging arm type. (to minimize and possibly obviate the skewing problem). The access drive will be either hydraulic or a redesigned (lighter and smaller) version of the present cable adder. Either drive will be supplemented with a vernier detent for reproducibility of track location.

R. V. Muffley

RVM:lc