

# MEETING OR CONTACT REPORT

Date of Report: November 17, 1958

Organization & Location:  IBM Product Planning, Poughkeepsie	Date: November 13, 1958
	Reported By: Mr. H. G. Kolsky
Project: (6) 7000-X Committee -- Investigation of the Bell Telephone Computer (BSDP)	Department: 910
	Follow-up Date:

PERSONNEL PARTICIPATING:  
(Place asterisk next to those on distribution list. Other distribution show at end of report)

Dr. G. A. Blaauw\*  
Mr. W. R. English\*  
Dr. H. G. Kolsky\* ←

Mr. English described the proposed Bell Telephone computer and the details of the application for which it was designed.

A. General:

Bell Labs designed a special purpose computer which could handle the revenue accounting problems for the Bell System accounting centers. In August 1958, they approached IBM to see if we would be interested in building these computers and tape systems for them.

IBM set up a committee under the chairmanship of Mr. G. V. Hawkins to study the situation. A proposal will be made on November 19, 1958.

B. The Application:

Automatic processing of the Bell System revenue accounting would be done at 120 accounting centers throughout the country. Each would handle about 250,000 accounts. The desire is to process these accounts daily in about 4 hours. The extra hours are to allow for future expansion and overloads.

Most pieces of data handled are 8 characters or less. An average of 21 passes are made on each piece of data, but it can be cut to 12 by reorganization. The data capacity required by the system is 6 tapes each capable of containing 35 million alpha-numeric characters.

There are other jobs which would be done on the same machine after hours, such as processing service orders and up-dating directories.

Other more difficult jobs such as cable-pair assignment are not contemplated for this machine.

C. The Computer:

The computer designed by Bell can have up to 8000 words of memory, there are 8 alphanumeric characters per word, 6 bits per character. There is a parity bit per character making a total of 56 bits per word. 4000 words are to be used for the main processor code, 1600 words for the system controller (supervisor program).

Arithmetic is parallel-decimal, average time 19 us per op. The computer has 35 op. codes, no indexing nor VFL. It does have masking and shifting codes to do VFL jobs, however.

The computer is completely tape-fed, i. e. There is no on-line I/O other than tapes. Other I/O is fed in thru a special "Transfer-store" tape.

Each of the 6 tapes has an automatic loading buffer. The programmer deals only with these buffers not the tapes themselves. The buffers hold 480 characters. Data is written on the tapes in fixed blocks of 480 characters each. These automatic buffers make index registers less necessary. The tapes are 2" wide and 5000 feet long, holding 35 million characters. The effective data rate is 72 KC. Each tape drive would have an automatic tape changing mechanism holding 6 tapes which is under the control of the computer. Extensive use is made of relays in the design. IBM has also examined the 7070 equipped with autoloading SWIFT tapes for this application. It meets all the requirements of the system except the 4 hour processing time.

D. Economic Considerations:

Bell has put a price of \$1.4 million on each of these machines. Bell has not been interested in the 705 for this application because of its cost. It would be interested in rental machines and commercially available machines, however.

Bell is not willing to consider consolidating its 120 accounting centers into larger units which might use a large machine more economically.

The first machine should be installed in 1960. By 1962, Bell wants to be installing them at the rate of 2 per month.

In spite of the above stipulations, there is still the possibility of a larger computer being considered later.

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