Basis of meeting Jews 1

FILE MEMO

June 5, 1958

SUBJECT: Proposal to Reduce Cost of Sigma Computer

A proposal to reduce the cost of Sigma Computer by 30% is outlined.

1. Present Status

At the present time the Sigma Computer consists of 140,000 transistors, excluding the Memory buss. Distribution of these transistors is as follows:

Floating Point Unit	28%
VFL Arithmetic	18%
Instruction Unit	18%
Look-Ahead	16%
Checking & Maintenance	20%

It is worth while to contemplate ways and means to reduce this count to 100,000 transistors without affecting the potential use and the performance of the computer.

2. Changes in Computer Organization

(a)	Eliminate Hamming check (Potential Machine Speed-up)	3,000
(b)	Eliminate Switch Matrix Checking	3,000
(c)	Eliminate 1 look-ahead level	5,000
(d)	Separate Interrupts (E-I) Don't store updated indicators	900
(e)	Don't compare fetches against LA-Stores. Hold	700
(f)	I-Box fetches operands for LA	600
(g)	Eliminate one I-Buffer	2,750
	Sub Total	15,950

3. Changes, In Instruction Set

(a)	Eliminate Word Boundary Cross over for instructions	200
(b)	Eliminate Algebraic Sign in Index Arithmetic	400
(c)	Eliminate Progressive Indexing	300

(d)	Change Adress Compares to Integral fields (8000) high order 5 or 6 bits	1,000
(e)	Elapsed Time Clock	200

(f)	Eliminate Execute
	        Rename
	        Load Index
	        Geom. Load
	        Store Adress
		1,600

(g)	Eliminate Decimal Arithmetic	3,000
(h)	Eliminate LZC - AlC	2,500
	Sub Total	9,200
	Total	25,150

So far the changes proposed will reduce the transistor count to 114,850.
The additional 14% reduction needed can be accomplished by the use of
second level modules, a general clever detailing of the machine and the
application of advanced circuit techniques to more areas.

Erich Bloch

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CC: Messrs:
     W. Buchholz
     S. W. Dunwell
     E. D. Foss
     R. E. Merwin
     W. Wolensky