

Memorandum M-2969

Division 6 - Lincoln Laboratory
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SUBJECT: TENTATIVE CATHODE ESTIMATES FOR $256^2 \times 33$ and $128^2 \times 33$
CORE MEMORIES

To: William N. Papiian

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Abstract: The largest number of cathodes for a $256^2 \times 33$ memory and $128^2 \times 33$ memory is estimated to be 4756 and 1912 respectively.

Contained herein is an estimated cathode count for two types of high speed coincident current core memories with general characteristics (other than storage capacity) similar to the MTC 64^2 Core Memory. One of these types is a $256^2 \times 33$ memory and the other a $128^2 \times 33$ memory.

Figures 1a and 1b are simplified block diagrams of the selection-plane systems for the $256^2 \times 33$ memory and the $128^2 \times 33$. The inclusion of these diagrams in this note should not be taken as an approval by the writers of this system over any others; they are included only to indicate to the reader how the numbers in Figure 2 were arrived at.

No block diagram of the digits system or of the memory control section have been included since these have been assumed (for tube-count purposes) to be basically the same as used in earlier core memories. The exceptions are as follows:

1. In the 128^2 memory it has been assumed that two sensing amplifiers and one digit-plane driver will be used in each digit.
2. In the 256^2 memory it has been assumed that four sensing amplifiers and two digit-plane drivers will be used in each digit.

The numbers in Figure 2 are considered to be a conservative or the largest likely representation of the number of cathodes in a 128^2 or 256^2 memory; conceivably a final design of either system could result in a much lower count.

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Drawings attached:

Figure 1, SA-47147 Page 3

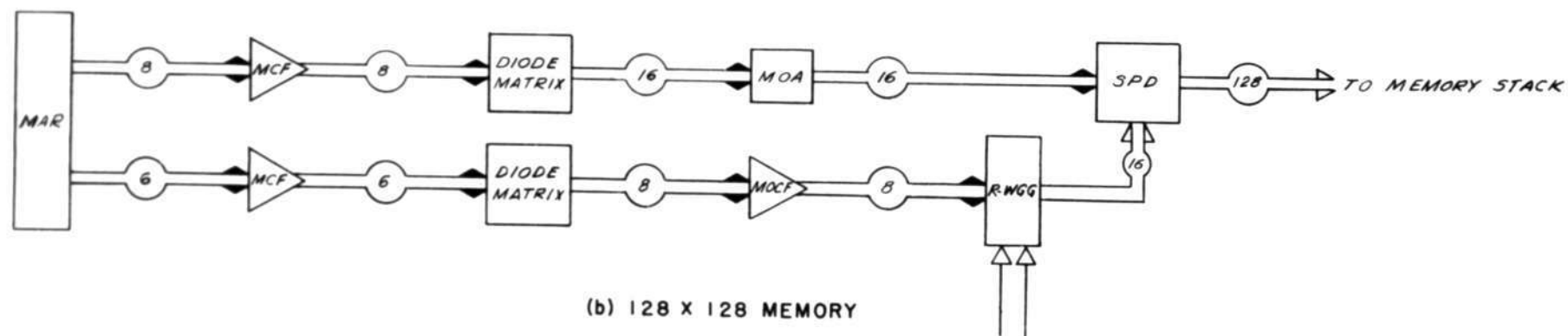
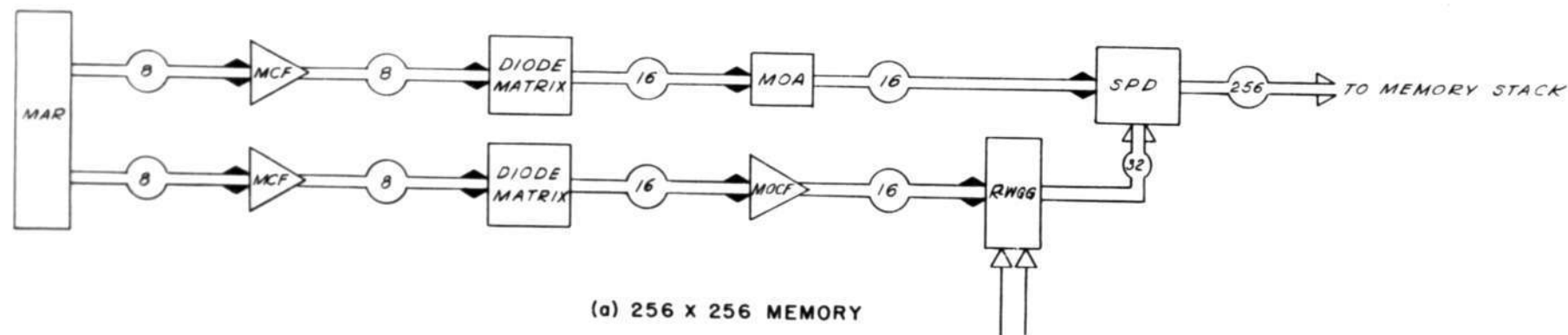


FIG. 1
X OR Y SELECTION PLANE SYSTEMS

	128 ² MEMORY		256 ² MEMORY	
	<u># of Cathodes</u>	<u>Remarks</u>	<u># of Cathodes</u>	<u>Remarks</u>
MAR	56	14 Flip-Flops	64	16 Flip-Flops
MAR CF	84	28 Cathode Followers	96	32 Cathode Followers
MOA	128	32 Amplifiers	384	32 Amplifiers
MOCF	48	16 Cathode Followers	96	32 Cathode Followers
R-W GG	192	16 Read, 16 Write Gate Generators	384	32 Read, 32 Write Gate Generators
SPD	512	256 Read, 256 Write Drivers	2048	512 Read, 512 Write Drivers
SA	594	2 SA per Digit	1188	4 SA per Digit
DPD	198	1 DPD per Digit	396	2 DPD per Digit
Control	<u>100</u>		<u>100</u>	
Total	1912		4756	

Table of Abbreviations

CF	Cathode Followers
DPD	Digit-Plane Drivers
MAR	Memory Address Register
MOA	Matrix Output Amplifiers
MOCF	Matrix Output Cathode Followers
R-W GG	Read-Write Gate Generators
SA	Sensing Amplifiers
SPD	Selection Plane Drivers

Figure 2. Cathode Counts for 128² and 256² Memories