

FIG. 1

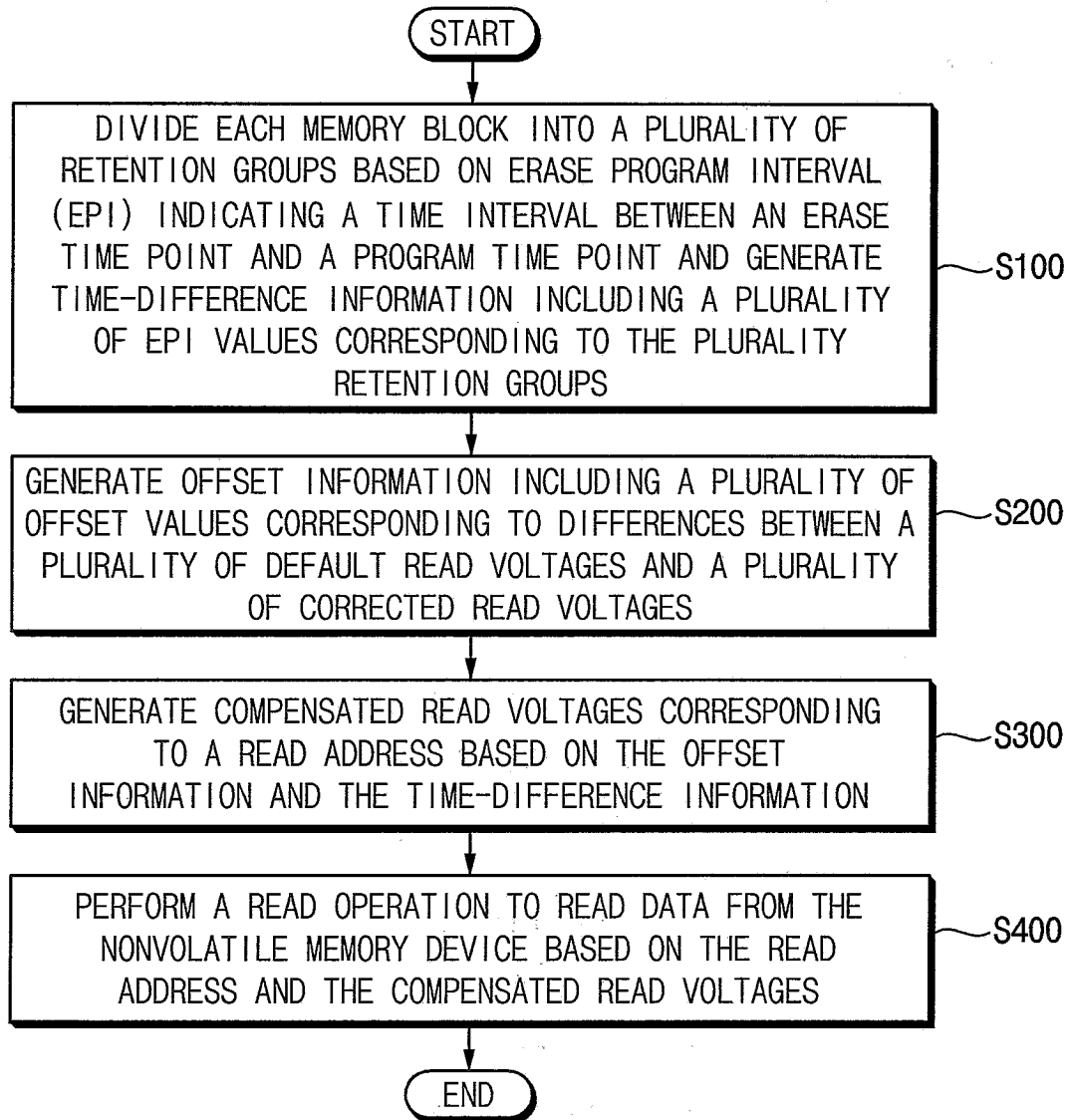


FIG. 2

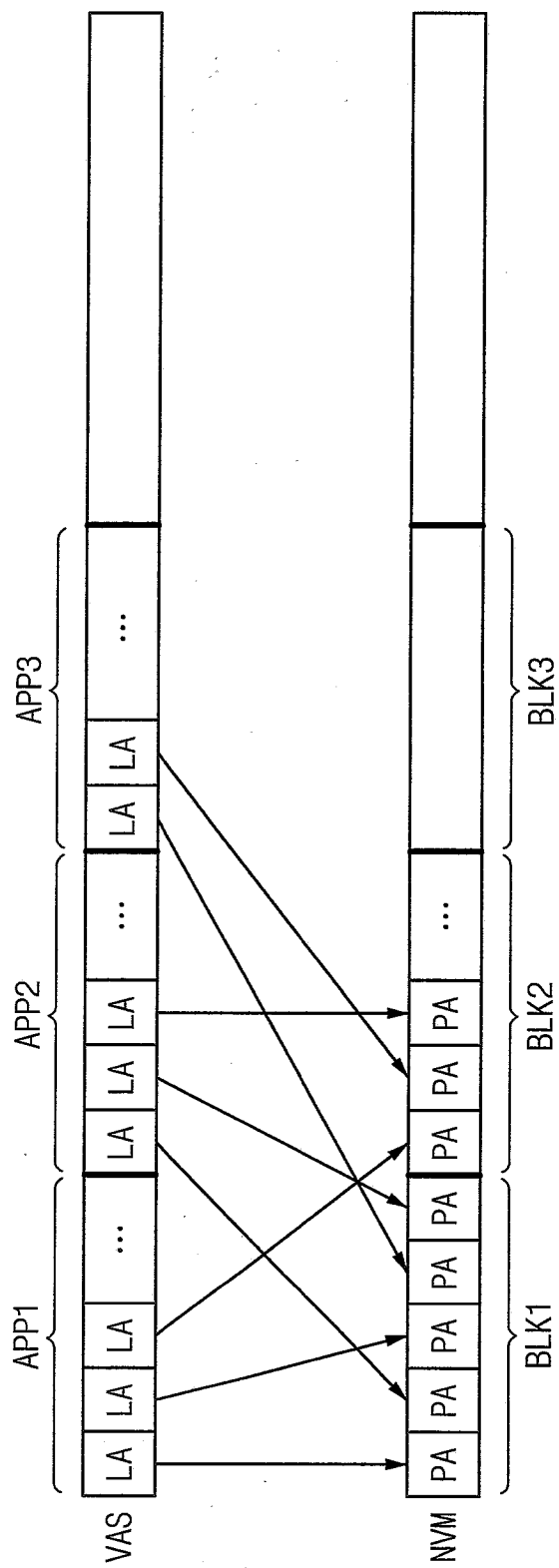


FIG. 3

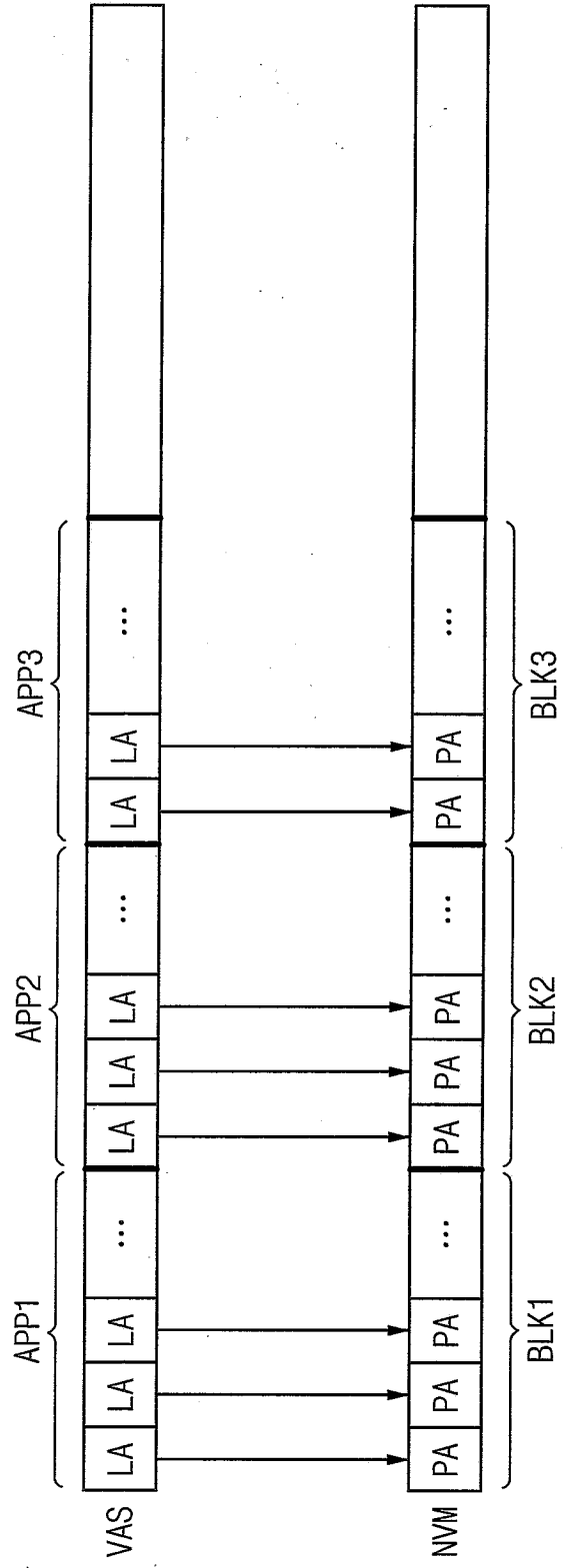


FIG. 4

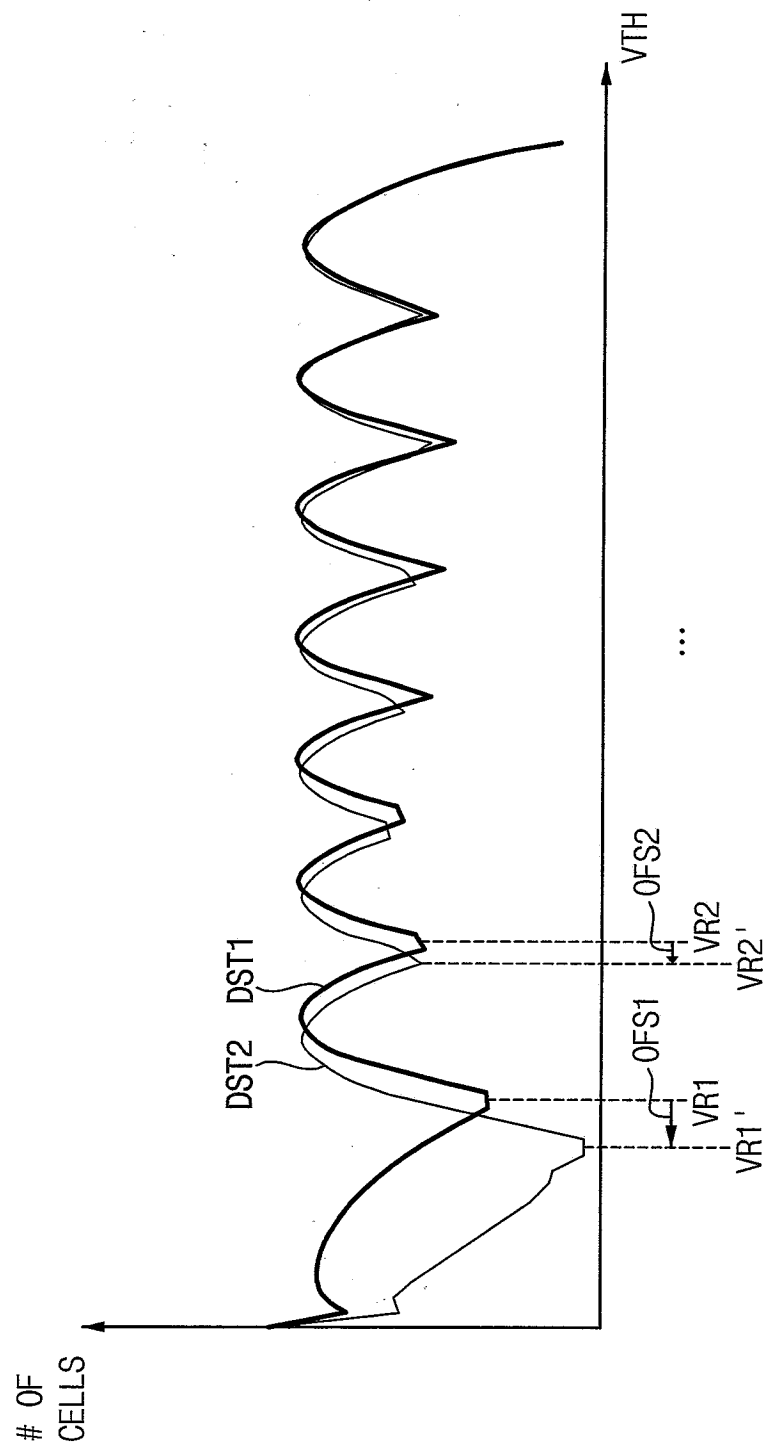


FIG. 5

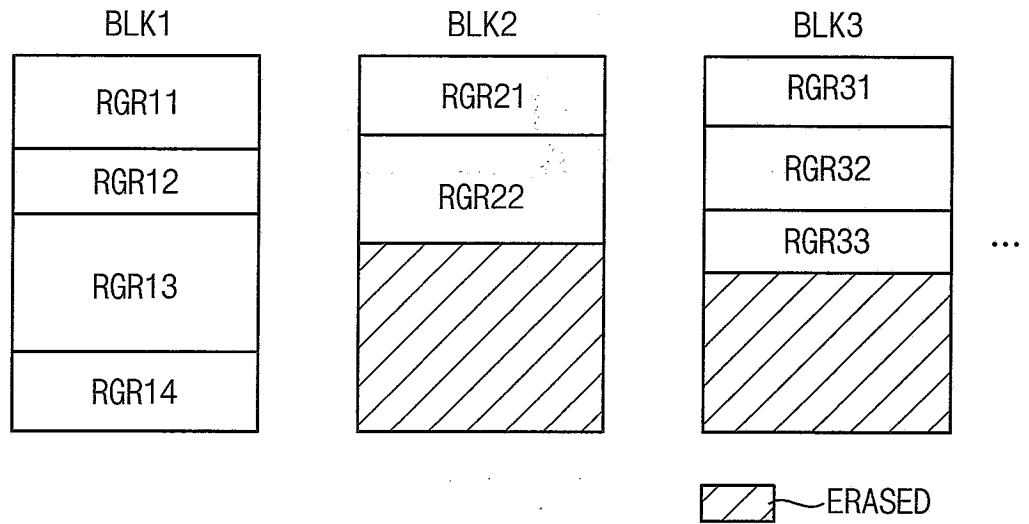


FIG. 6

MEMORY BLOCK	DEFAULT READ VOLTAGES				
BLK1	VR11	VR12	VR13	...	VR1K
BLK2	VR21	VR22	VR23	...	VR2K
BLK3	VR31	VR32	VR33	...	VR3K
⋮	⋮	⋮	⋮	...	⋮

FIG. 7

OFS INF

MEMORY BLOCK	OFFSET VALUES				
BLK1	OFS11	OFS12	OFS13	...	OFS1K
BLK2	OFS21	OFS22	OFS23	...	OFS2K
BLK3	OFS31	OFS31	OFS33	...	OFS3K
⋮	⋮	⋮	⋮	...	⋮

FIG. 8

TD INF

MEMORY BLOCK	EPI VALUES			
	RGRi1	RGRi2	RGRi3	RGRi4
BLK1	TD11 (0)	TD12 (40)	TD13 (160)	TD14 (260)
BLK2	TD21 (0)	TD22 (80)		
BLK3	TD31 (-20)	TD32 (0)	TD33 (50)	
⋮	⋮	⋮	⋮	⋮

FIG. 9

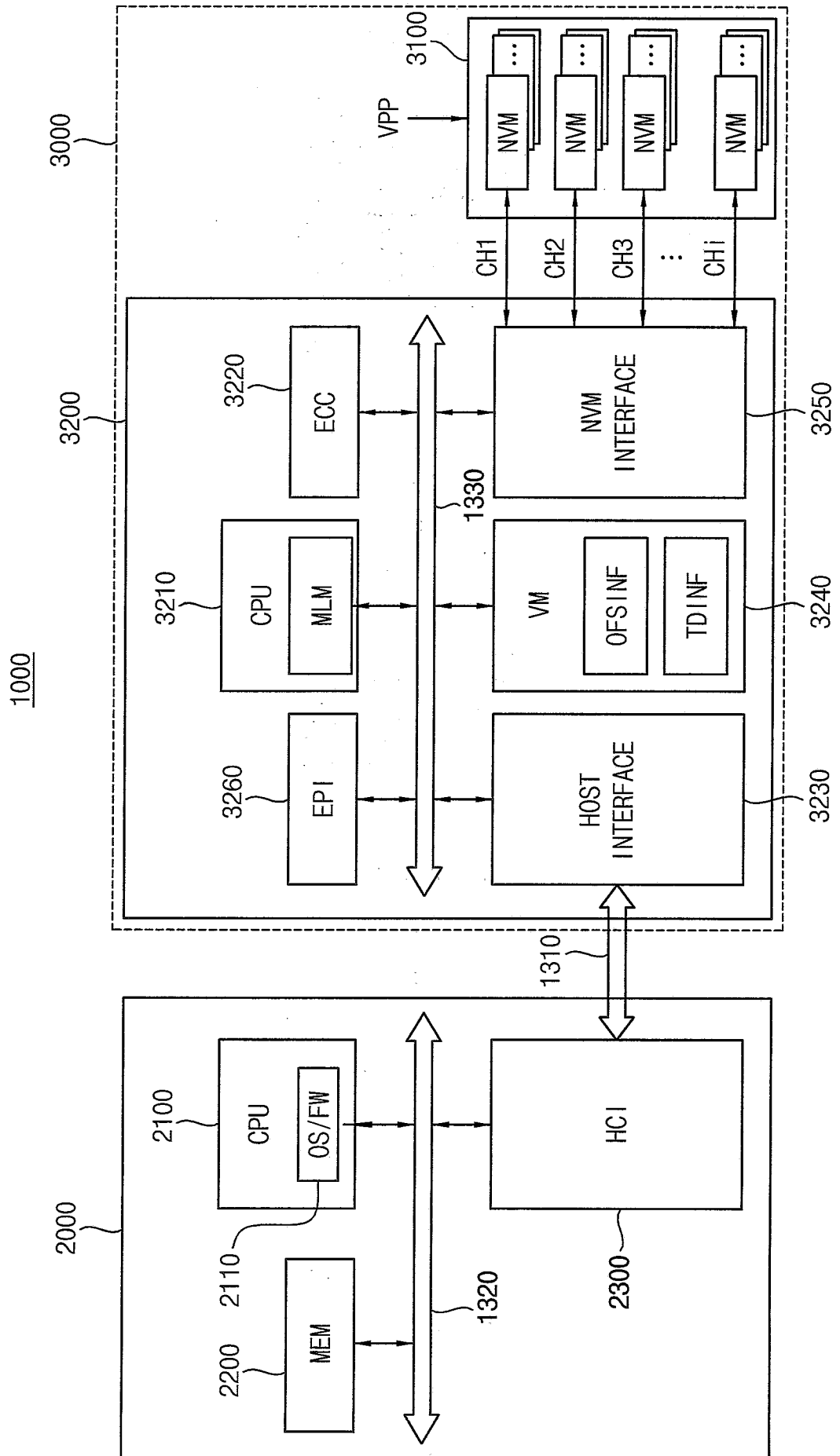


FIG. 10

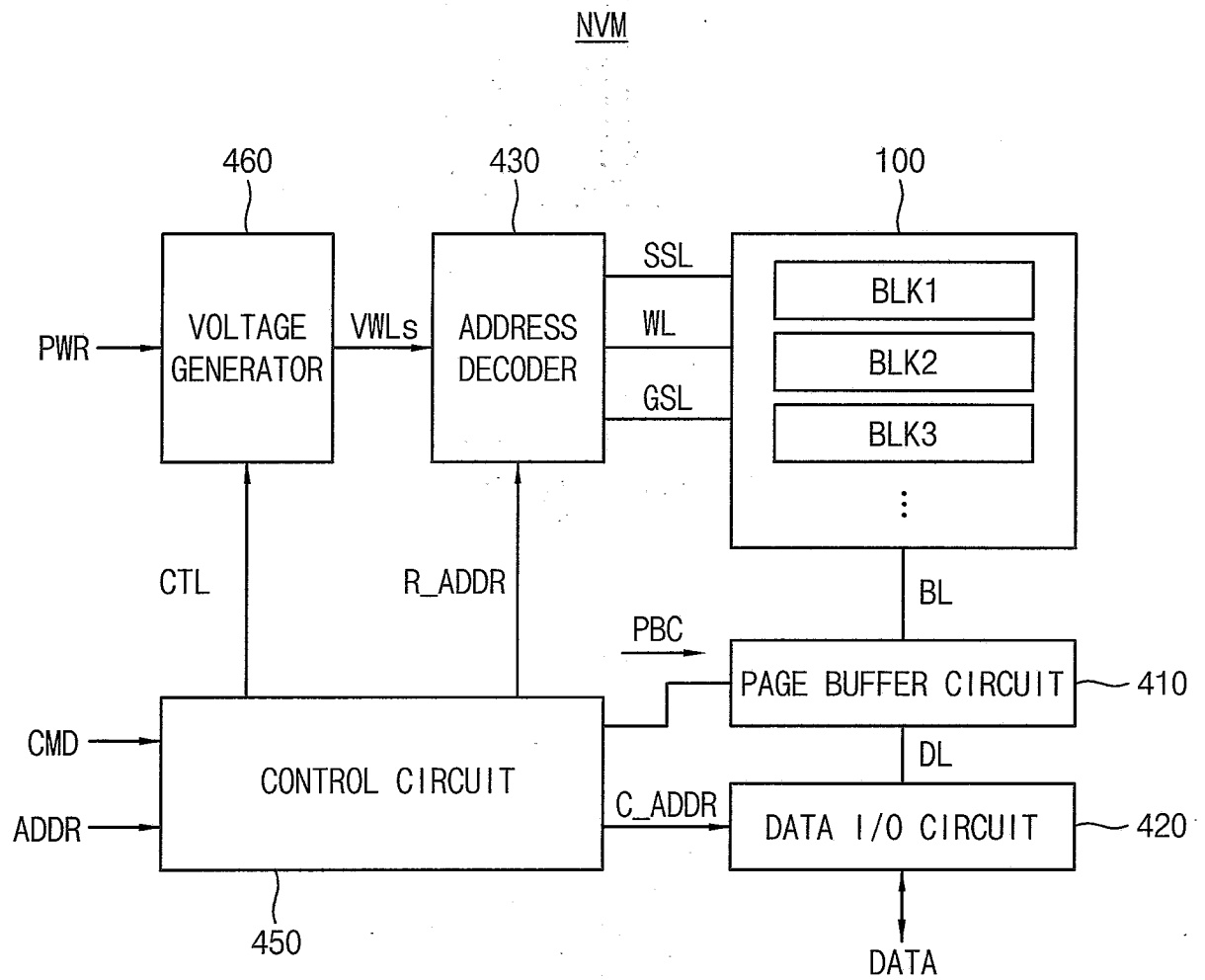


FIG. 11

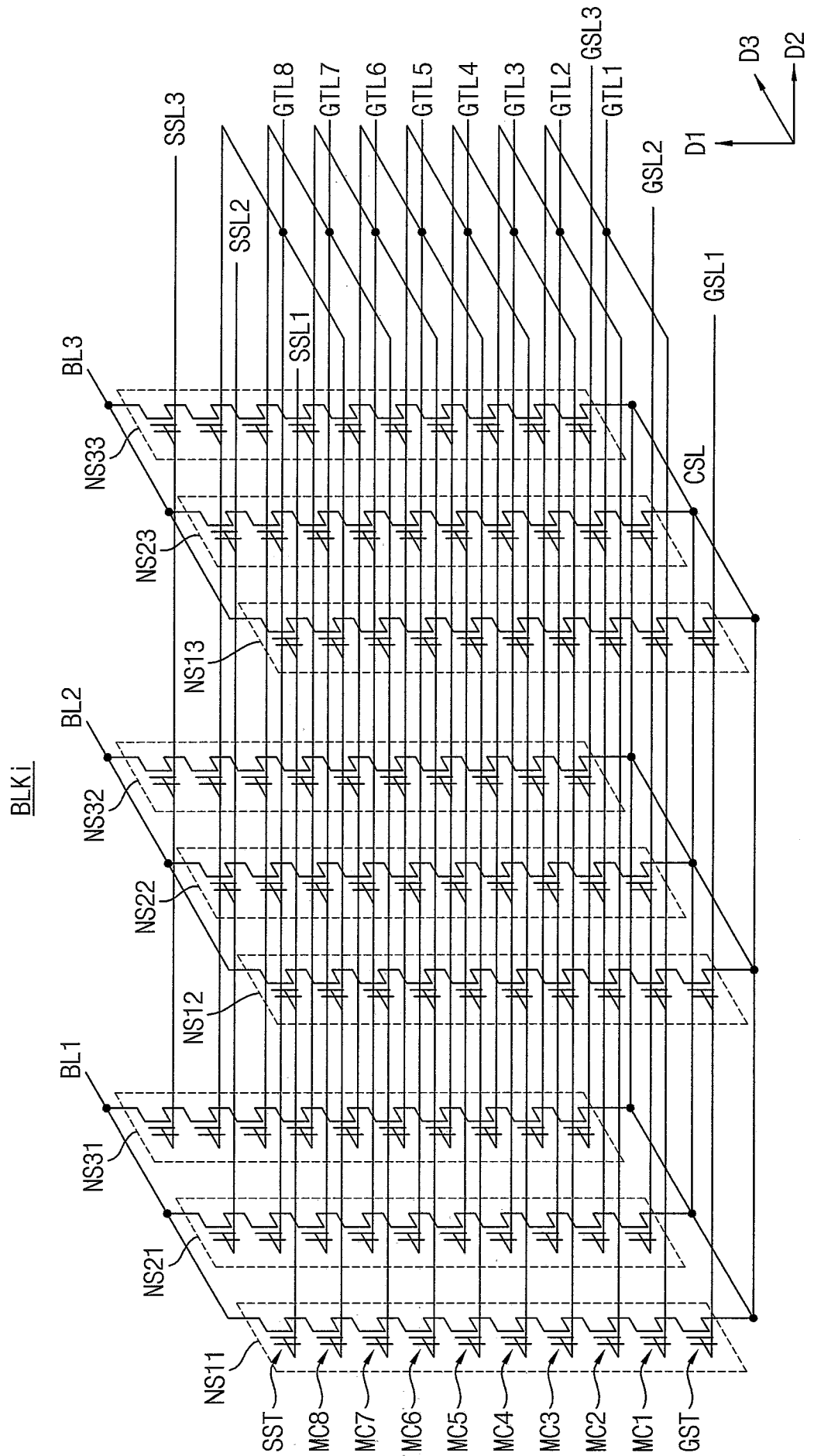


FIG. 12

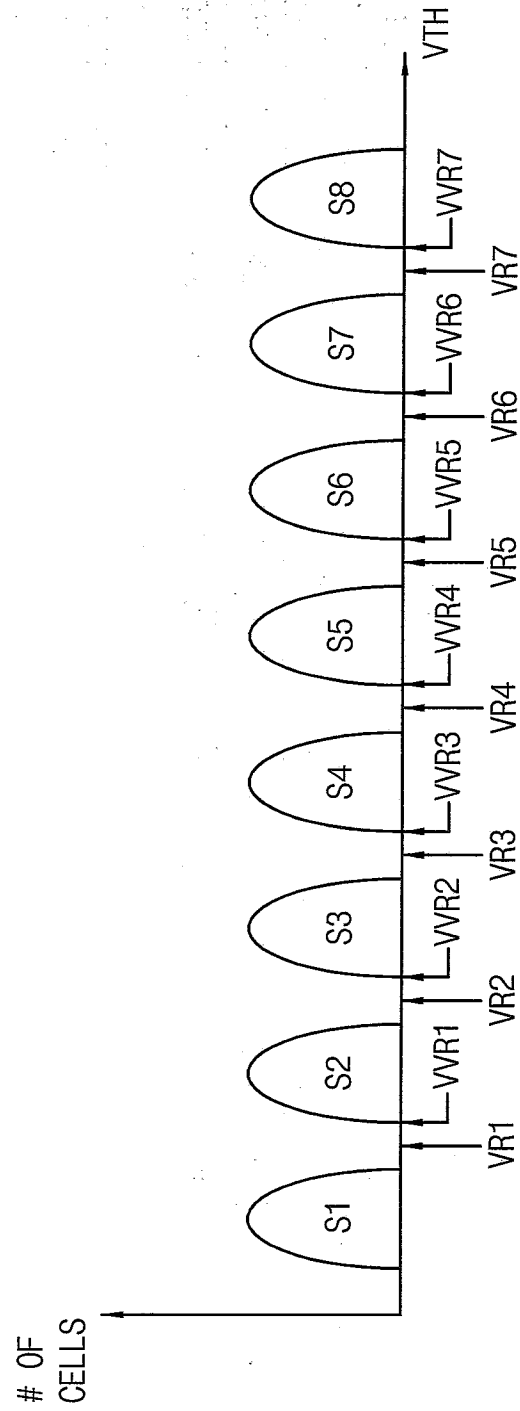


FIG. 13

MINF
↙

	S1	S2	S3	S4	S5	S6	S7	S8
LSB	1 ↔ 0	0	0	0	0 ↔ 1	1	1	1
CSB	1	1 ↔ 0	0	0 ↔ 1	1	1 ↔ 0	0	0
MSB	1	1	1 ↔ 0	0	0	0	0 ↔ 1	1

↑
VR1

↑
VR2

↑
VR3

↑
VR4

↑
VR5

↑
VR6

↑
VR7

FIG. 14

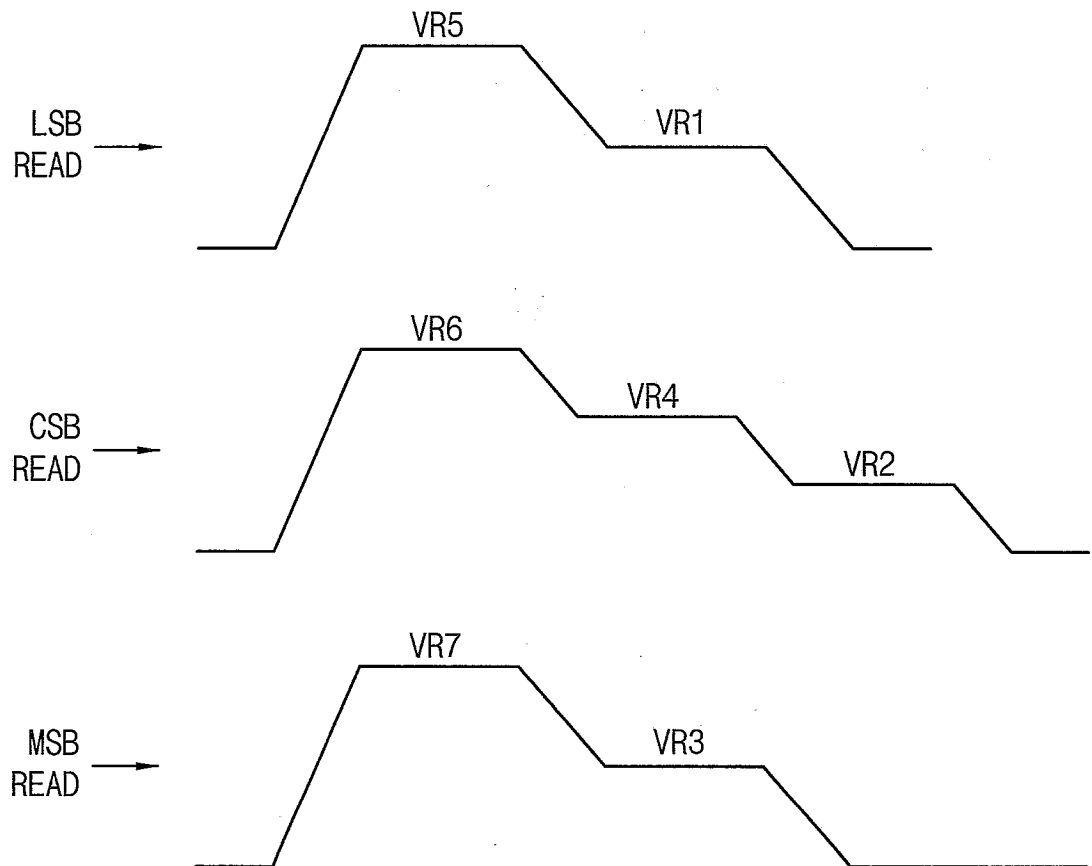


FIG. 15

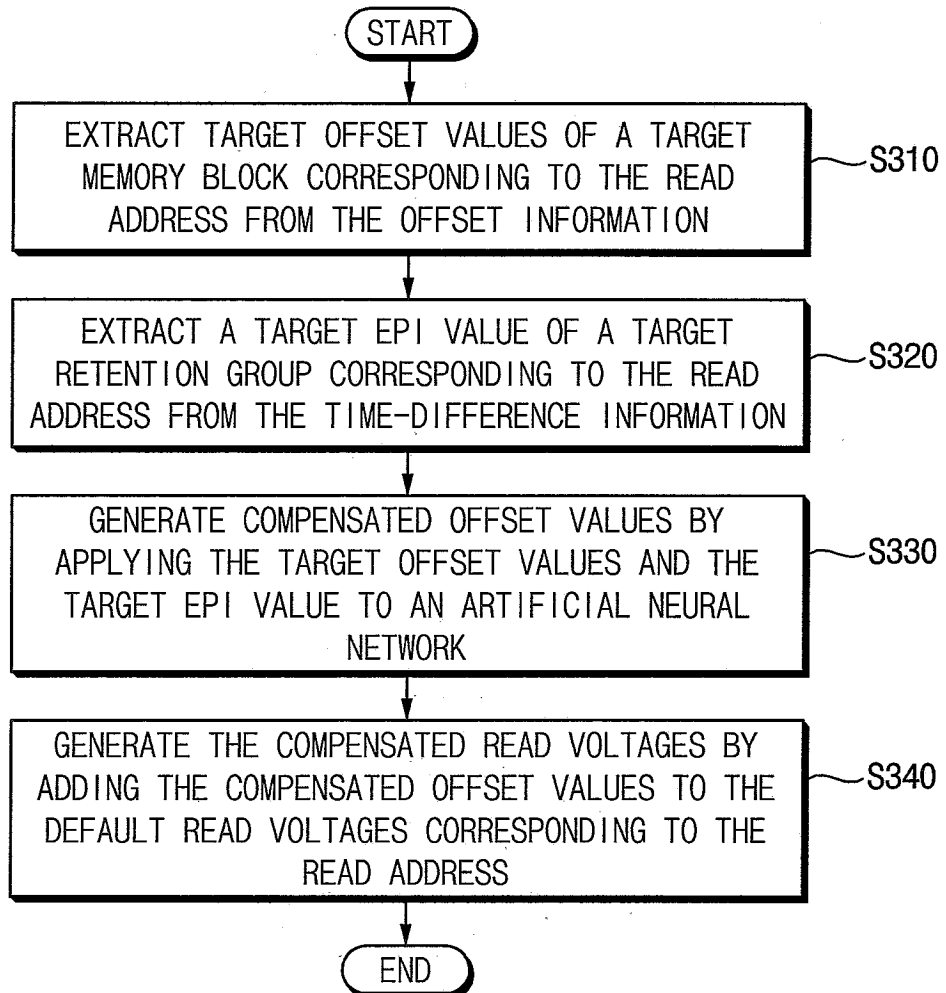


FIG. 16

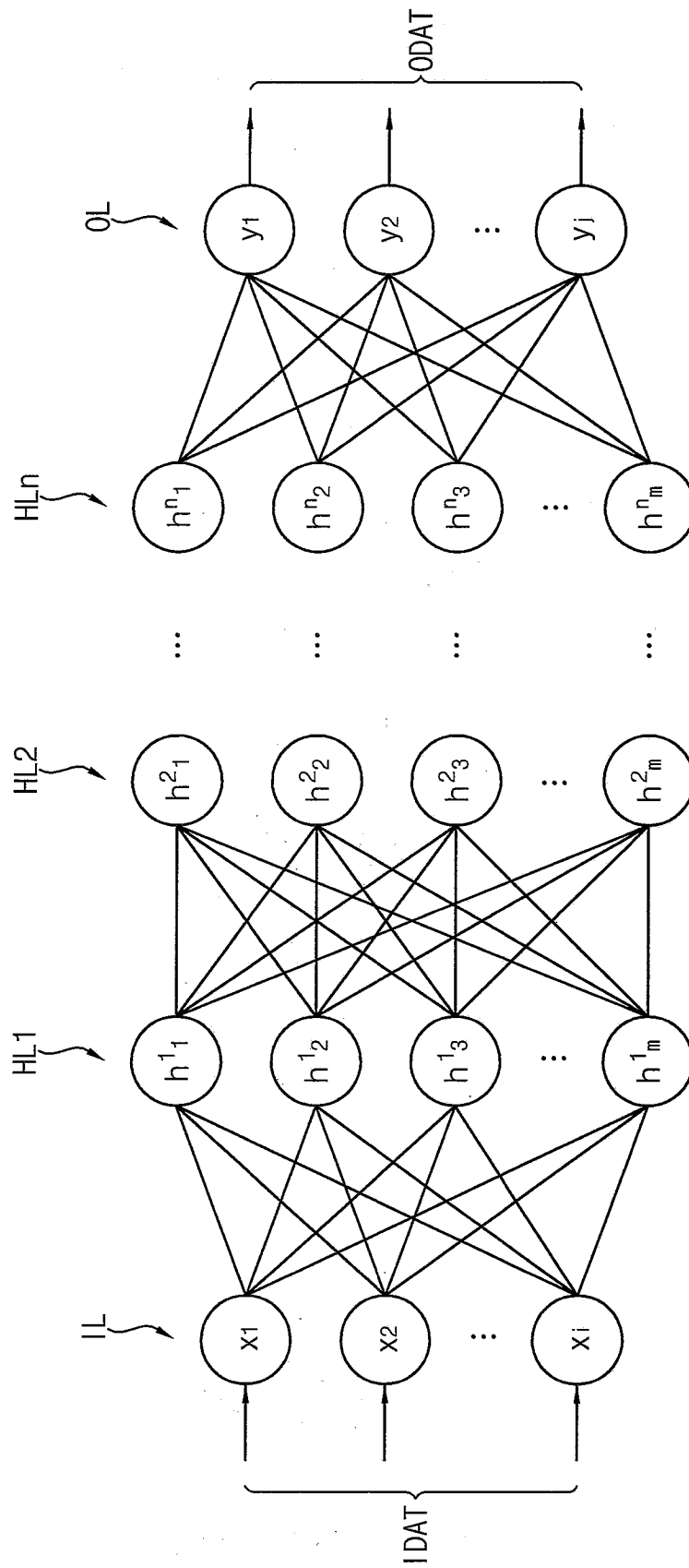


FIG. 17

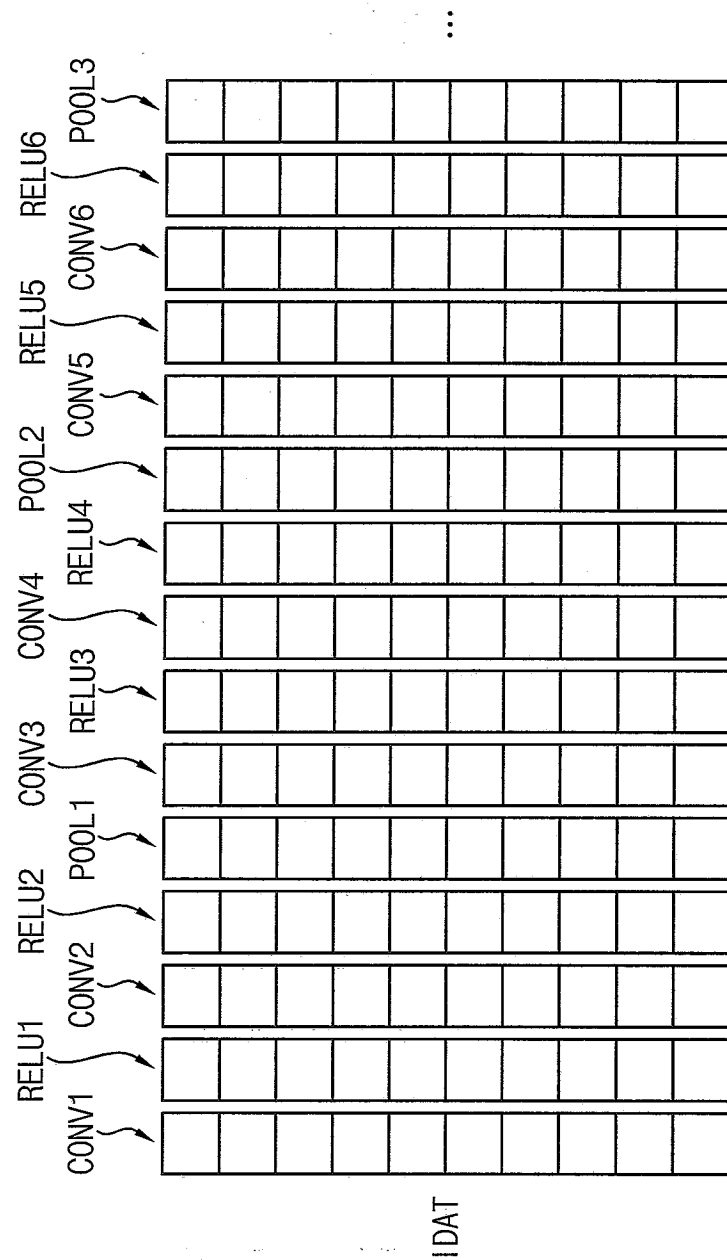


FIG. 18

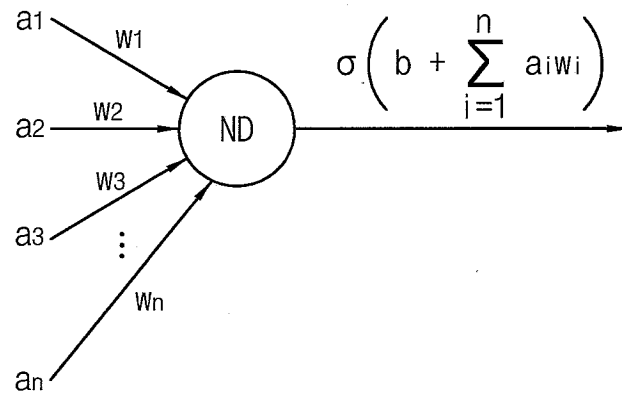


FIG. 19

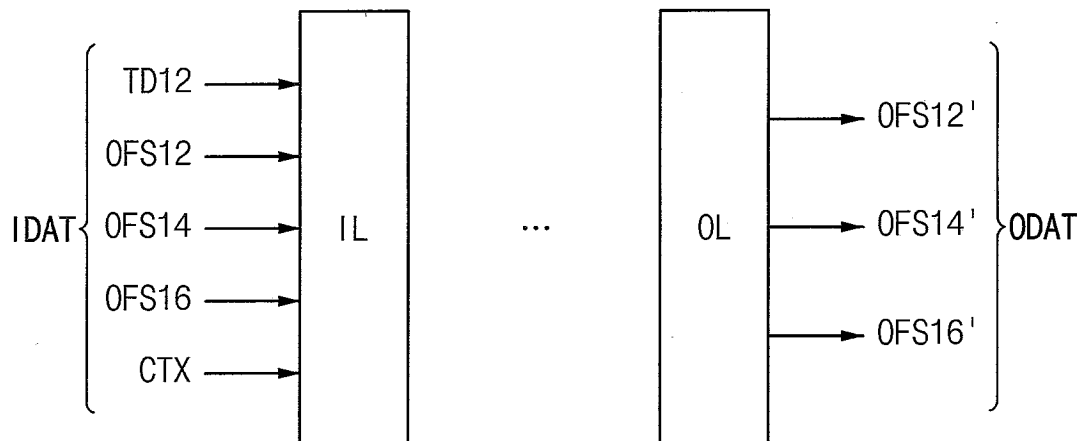


FIG. 20

BLK#	WL#	TRAINING DATA					MEASURED OFFSET VALUES			
		TD	OFS2	OFS4	OFS6	MOFS2	MOFS4	MOFS6		
300	16	-20	-1	-4	-9	0	-3	-6		
300	16	-10	-1	-4	-9	-1	-3	-8		
300	16	10	-1	-4	-9	-1	-5	-10		
300	16	20	-1	-4	-9	-2	-5	-11		
300	16	30	-1	-4	-9	-3	-6	-12		
310	64	-10	0	-3	-6	0	-2	-5		
310	64	-10	0	-3	-6	0	-4	-8		

FIG. 21

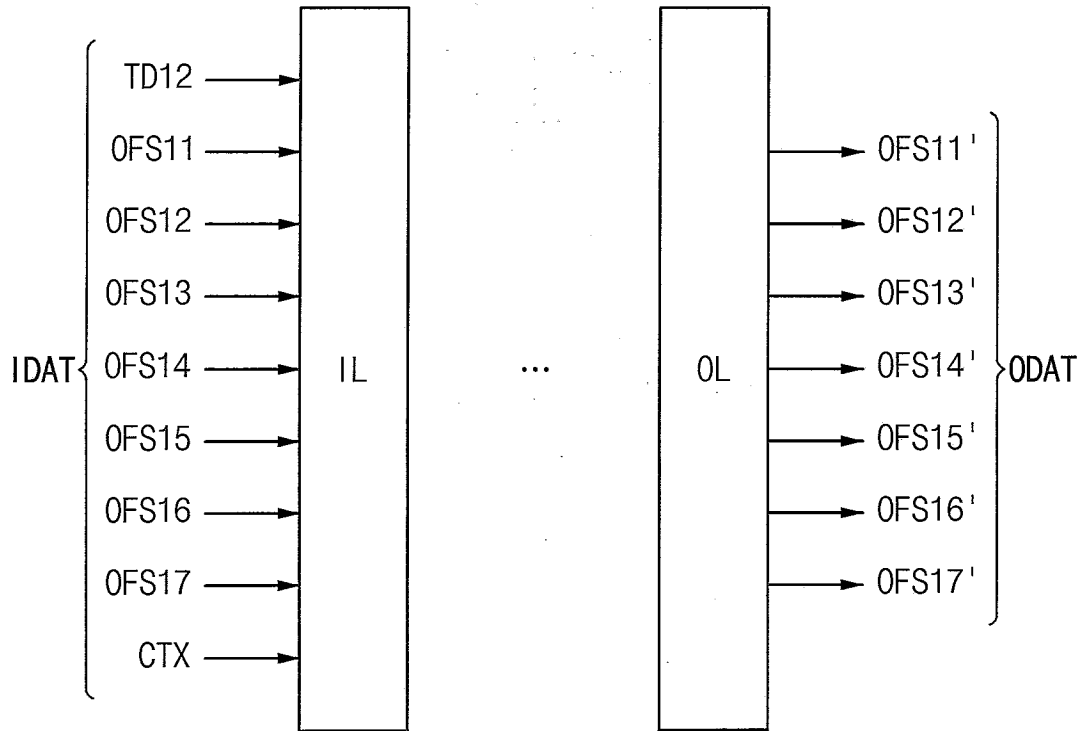


FIG. 22

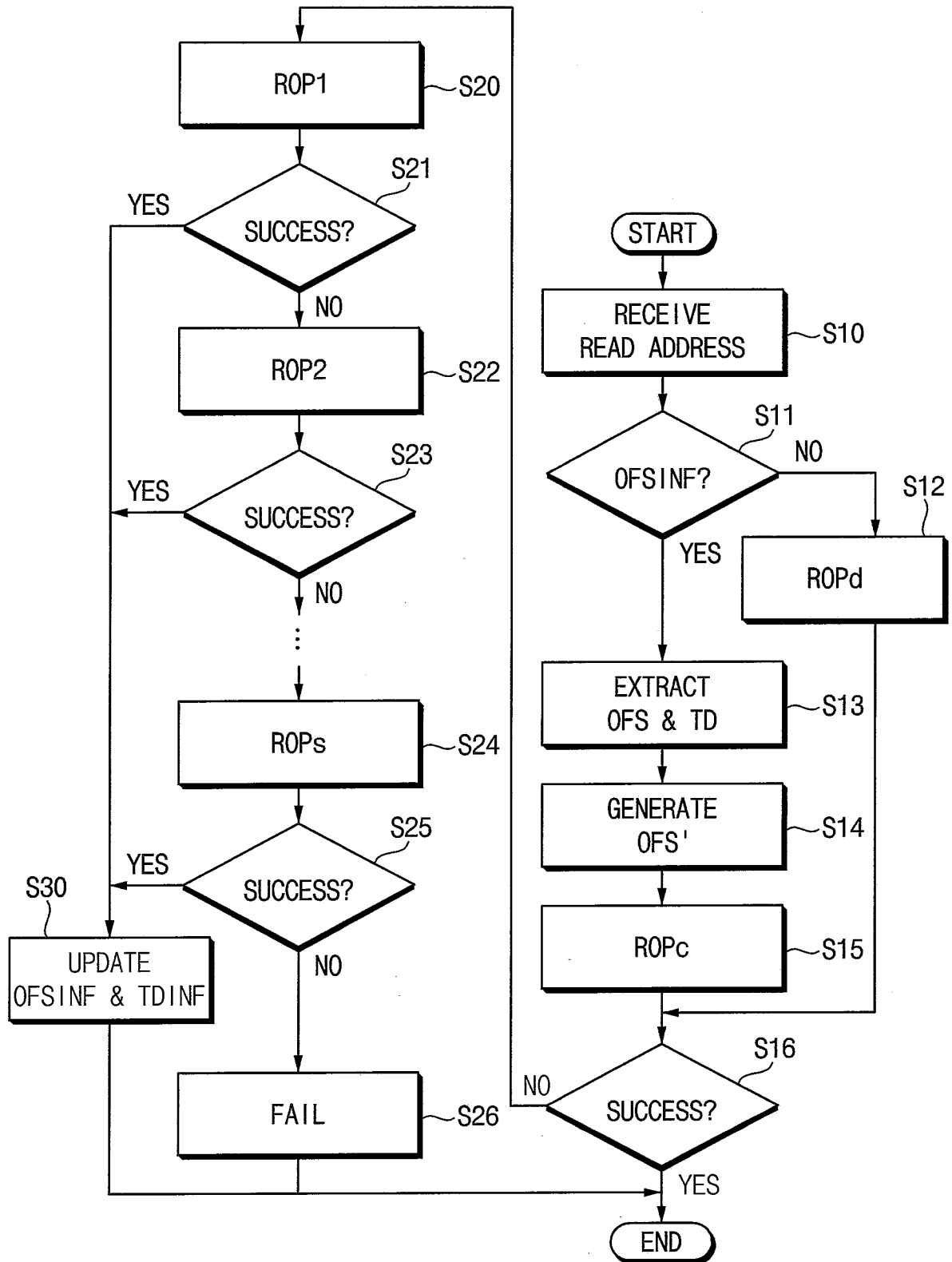


FIG. 23

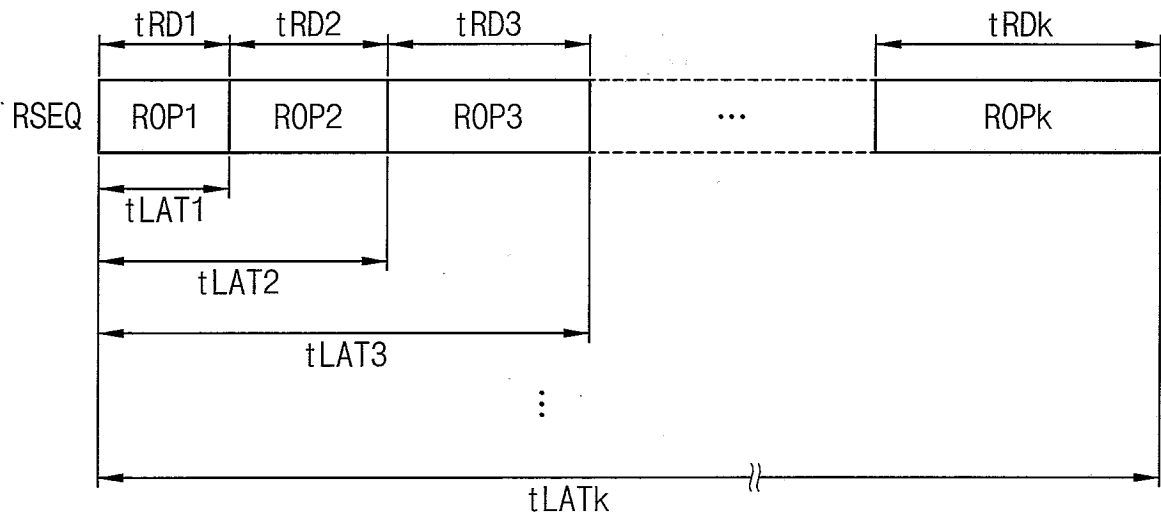


FIG. 24

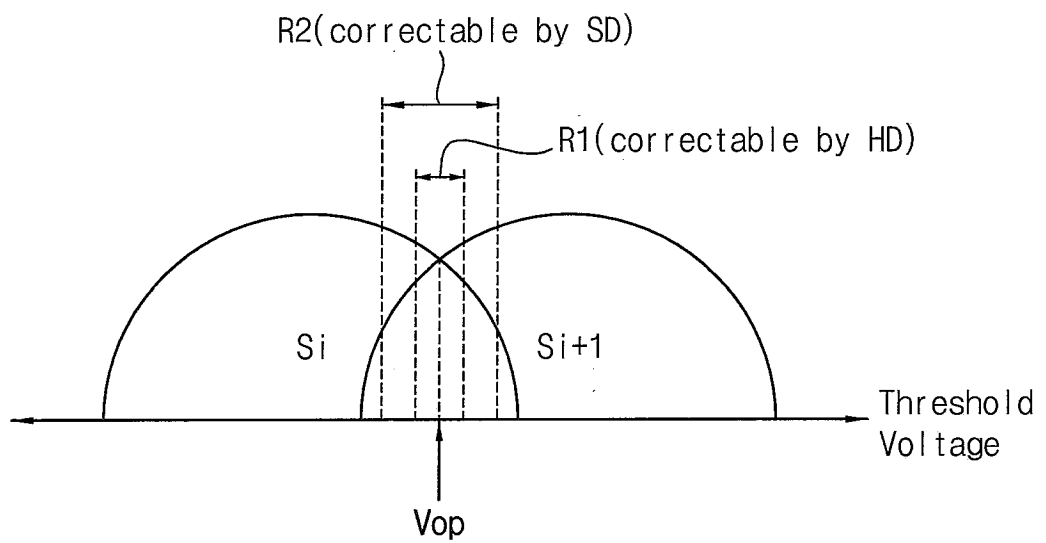


FIG. 25

OFS INF
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MEMORY BLOCK	OFFSET VALUES				
BLK1	OFS11'	OFS12'	OFS13'	...	OFS1K' ← UPDATE
BLK2	OFS21	OFS22	OFS23	...	OFS2K
BLK3	OFS31	OFS31	OFS33	...	OFS3K
⋮	⋮	⋮	⋮	...	⋮

FIG. 26

TD INF
↙

MEMORY BLOCK	EPI VALUES			
	RGRi1	RGRi2	RGRi3	RGRi4
BLK1	TD11 (0→-40)	TD12 (40→0)	TD13 (160→120)	TD14 (260→220) ← UPDATE
BLK2	TD21 (0)	TD22 (80)		
BLK3	TD31 (-20)	TD32 (0)	TD33 (50)	
⋮	⋮	⋮	⋮	⋮

FIG. 27

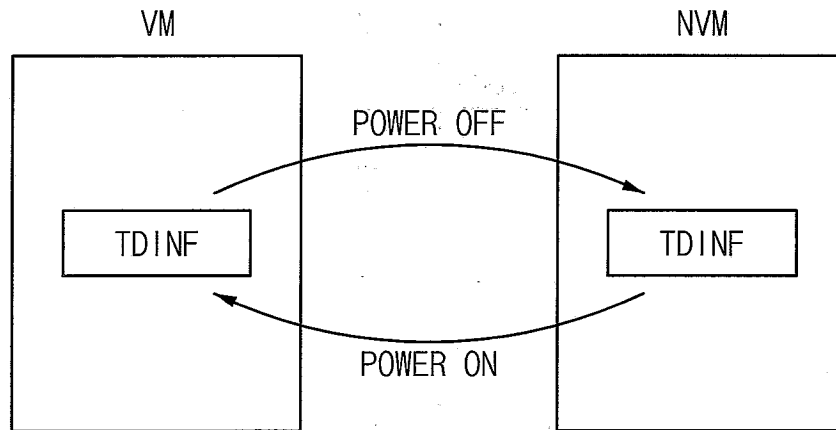


FIG. 28

