

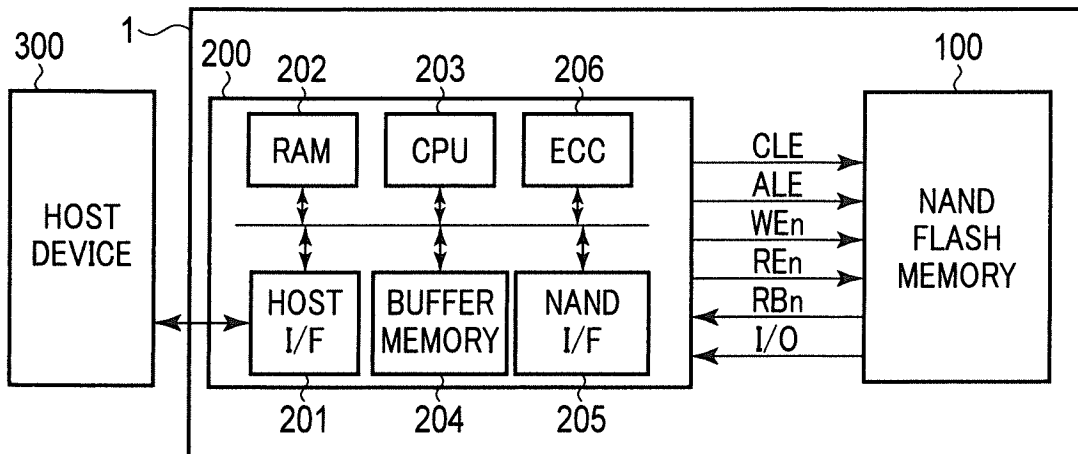


FIG. 1

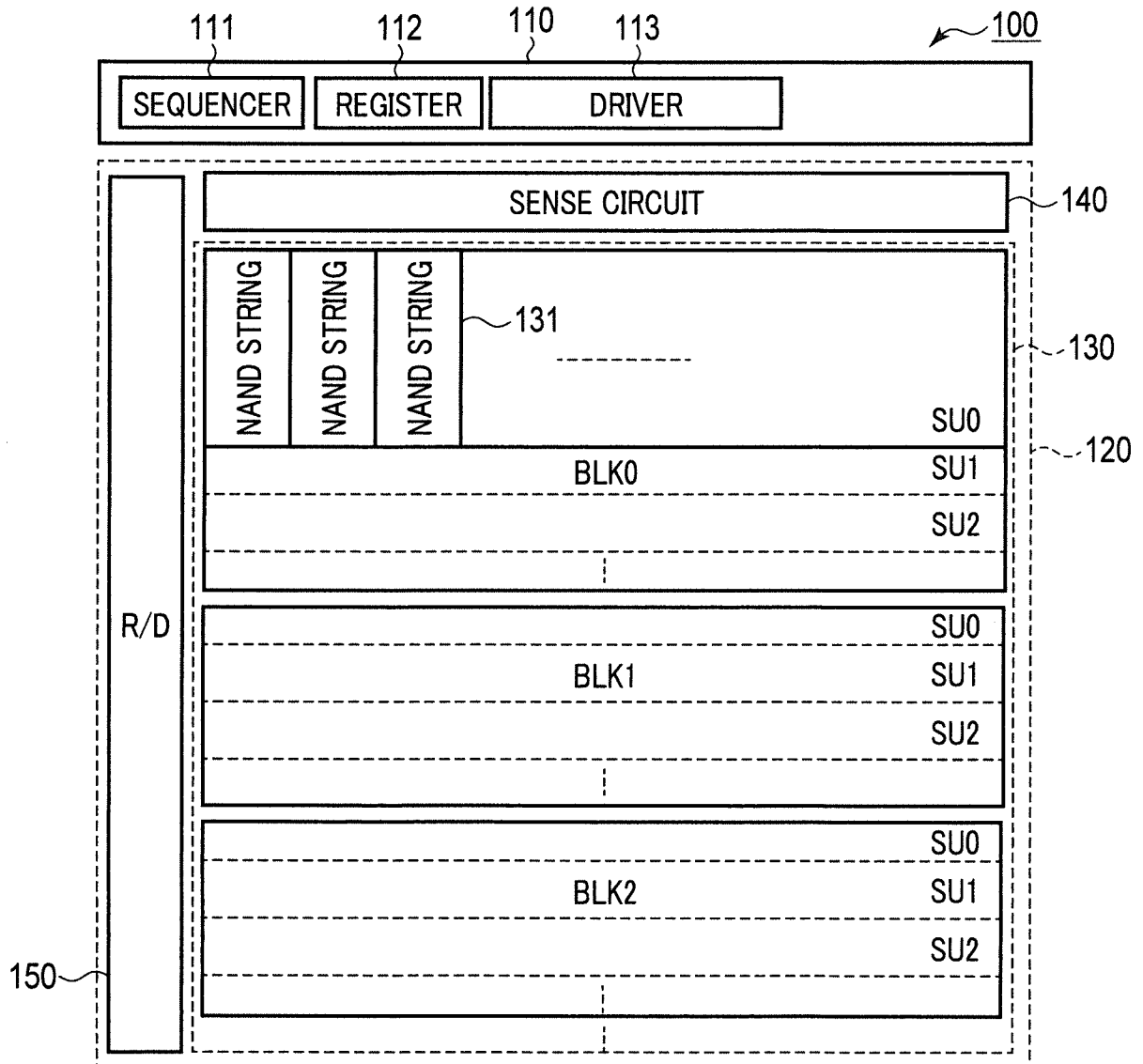


FIG. 2

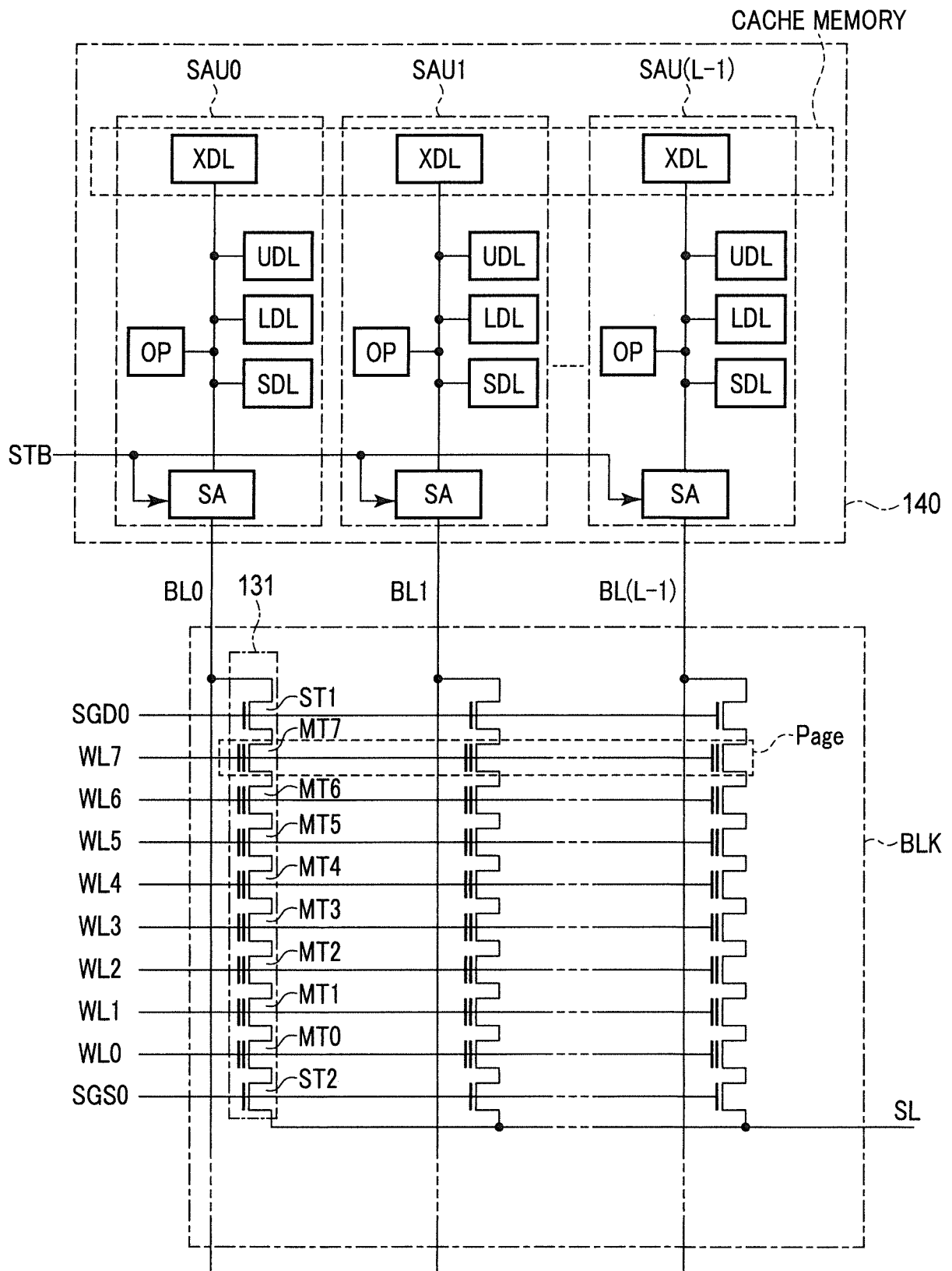


FIG. 3

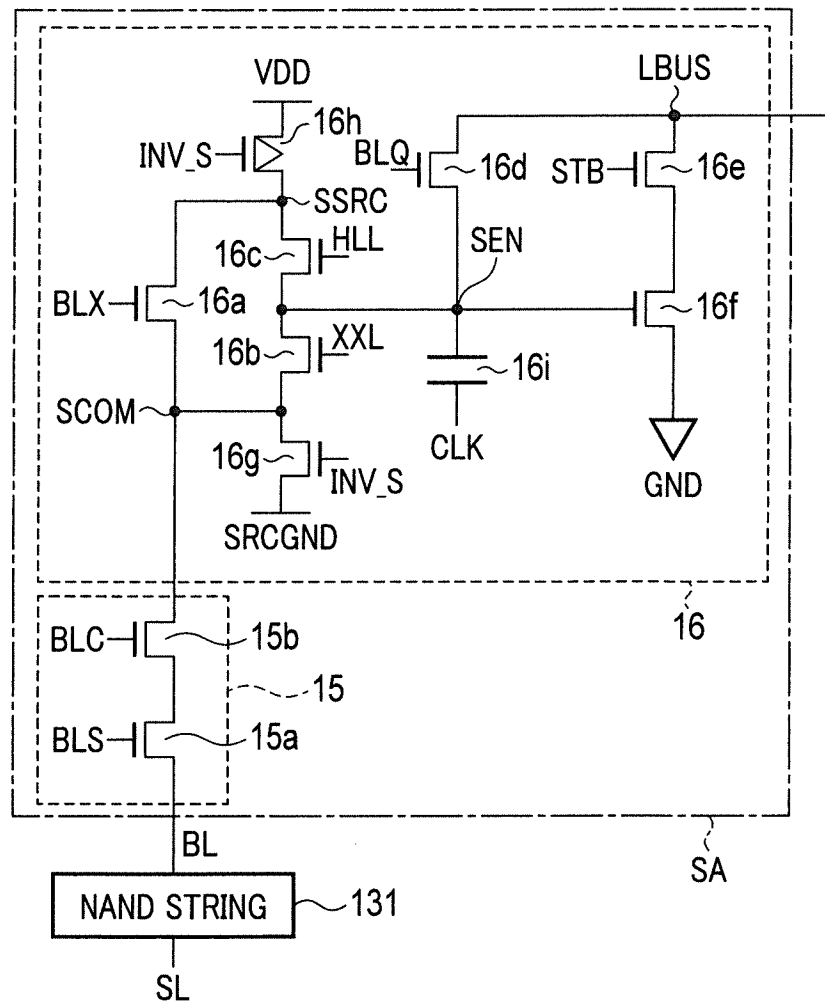


FIG. 4

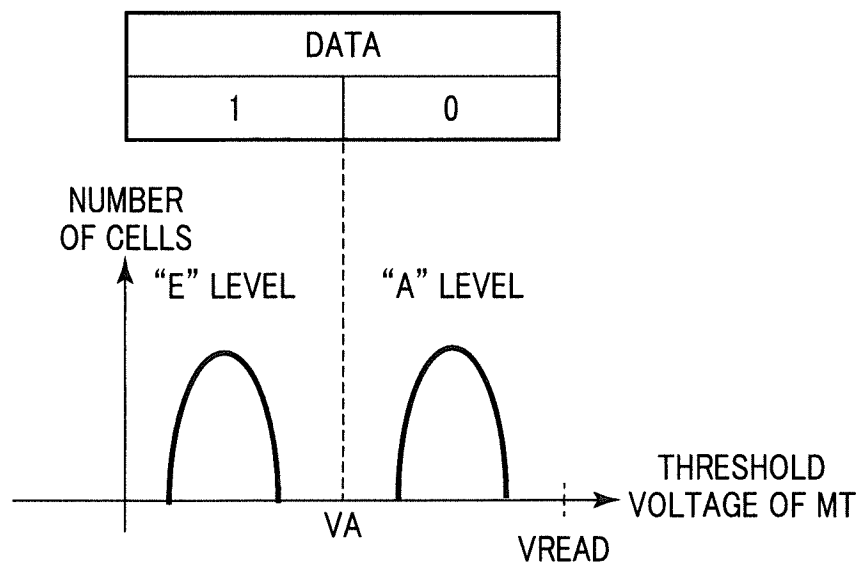
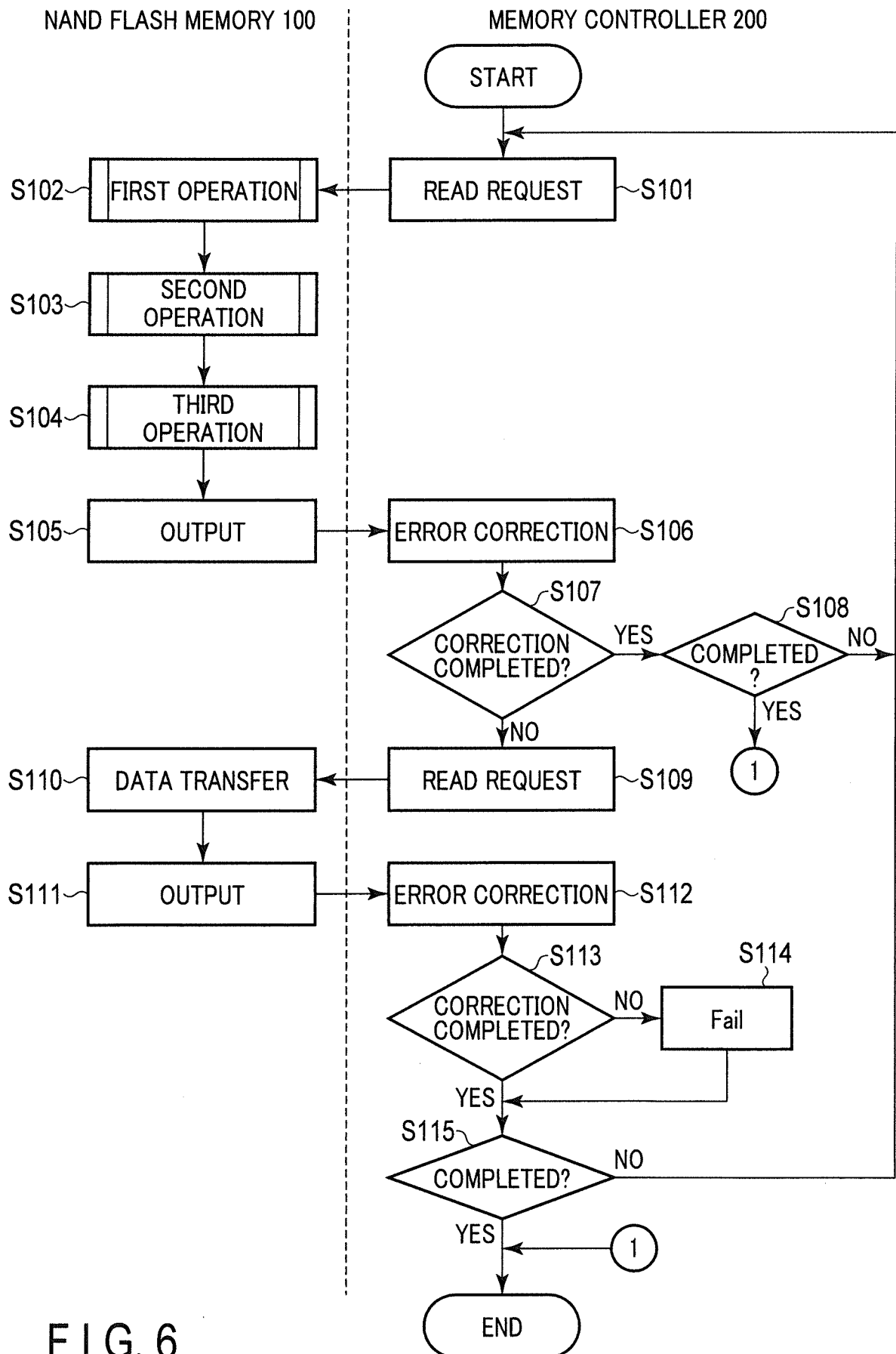


FIG. 5



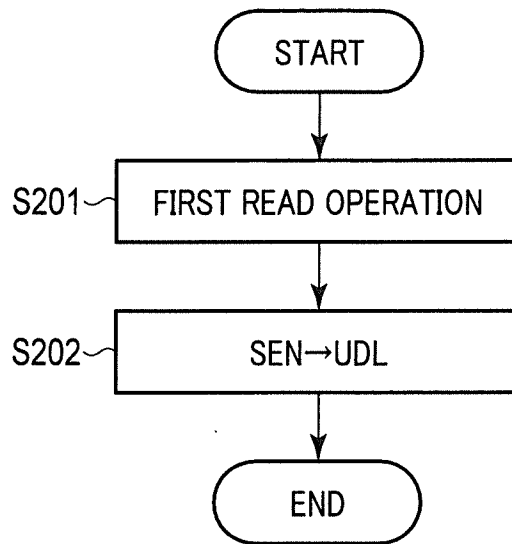


FIG. 7

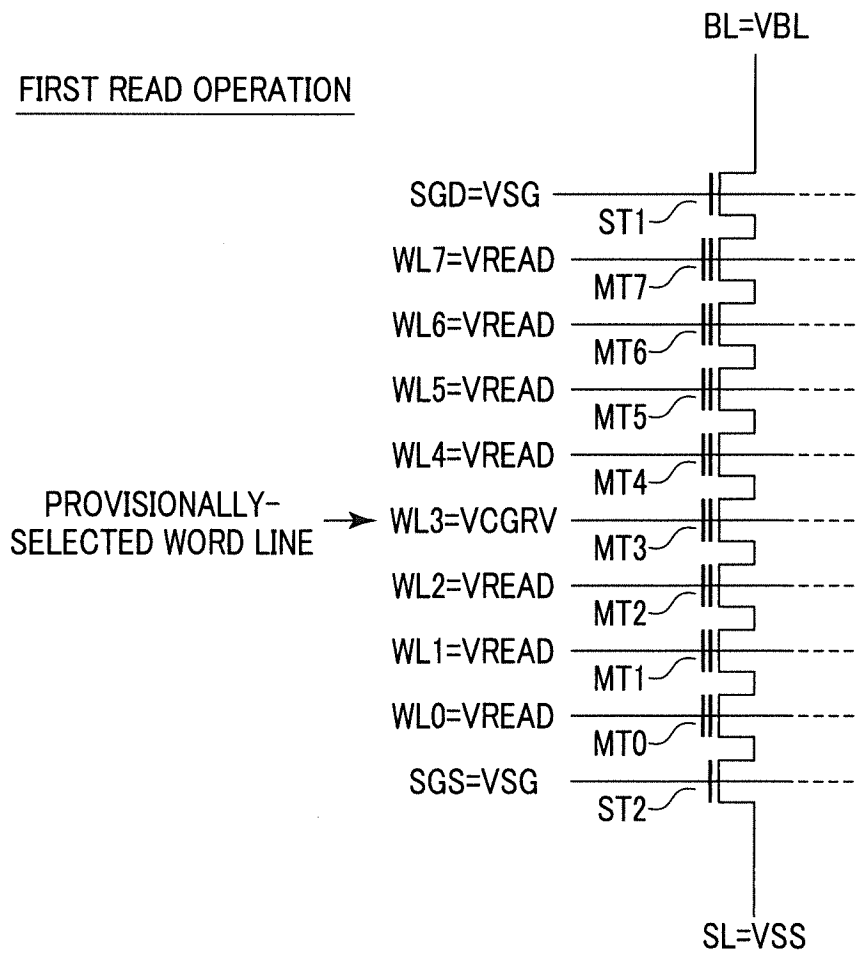


FIG. 8

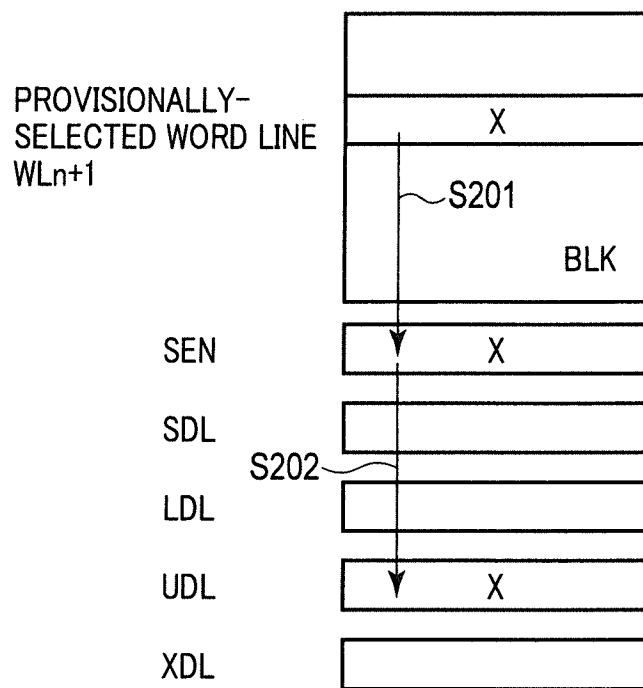


FIG. 9

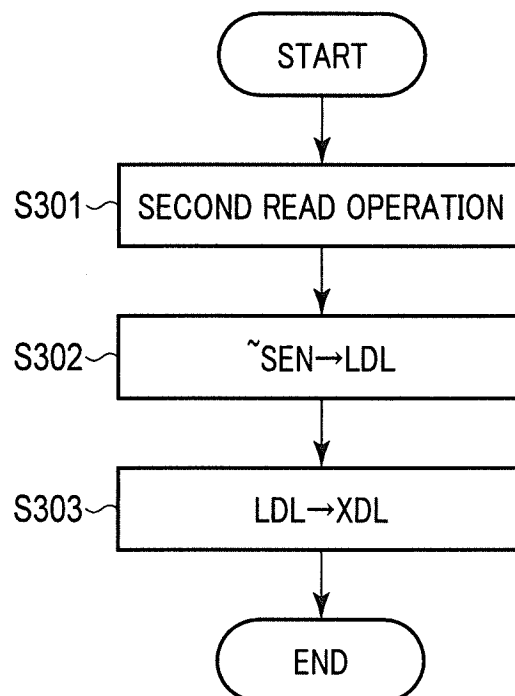


FIG. 10

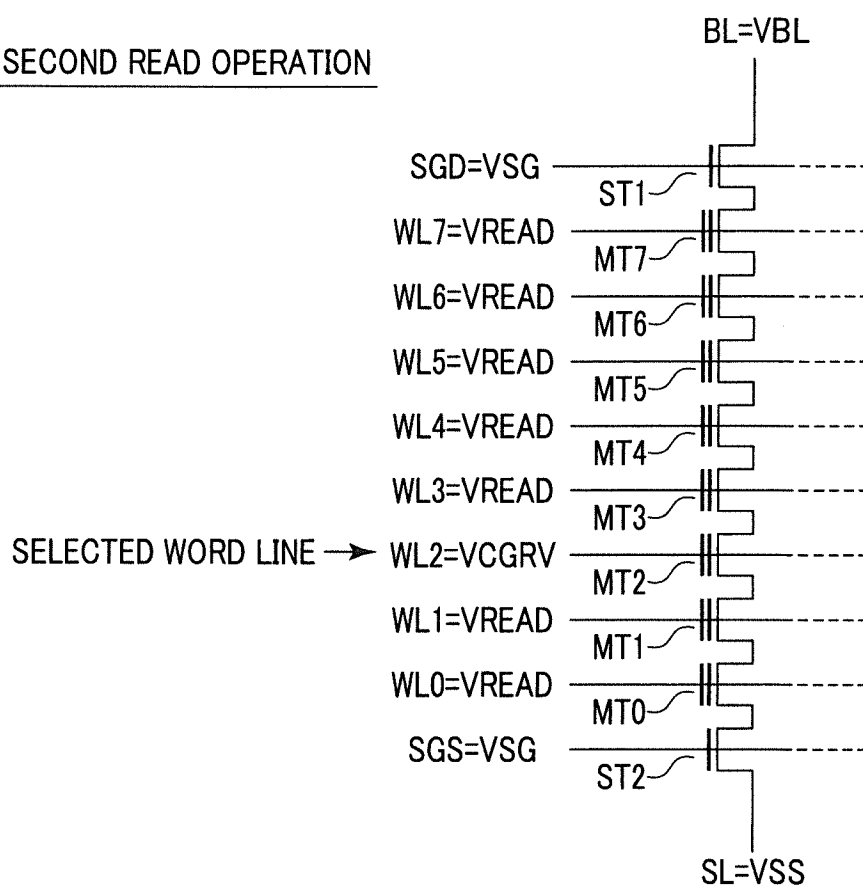
SECOND READ OPERATION

FIG. 11

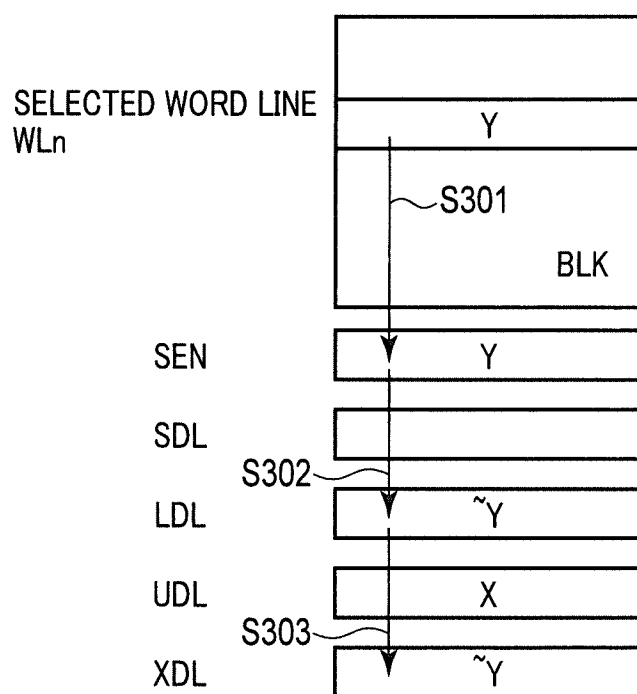


FIG. 12

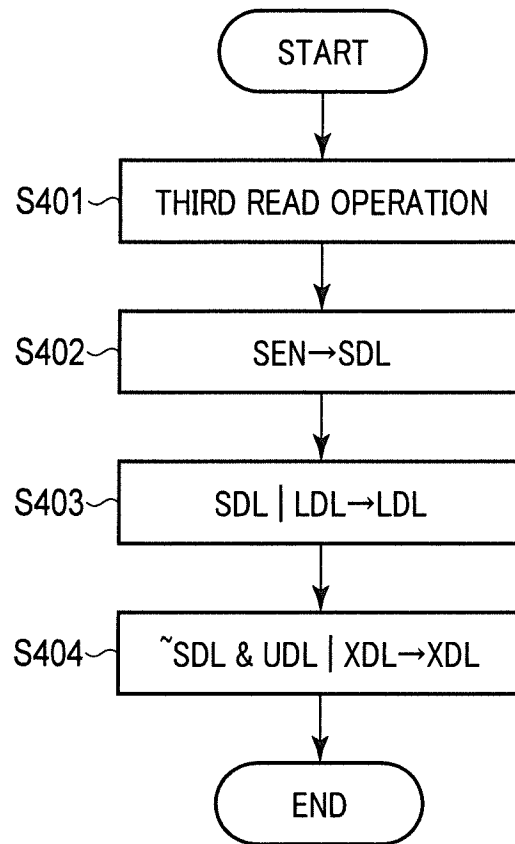


FIG. 13

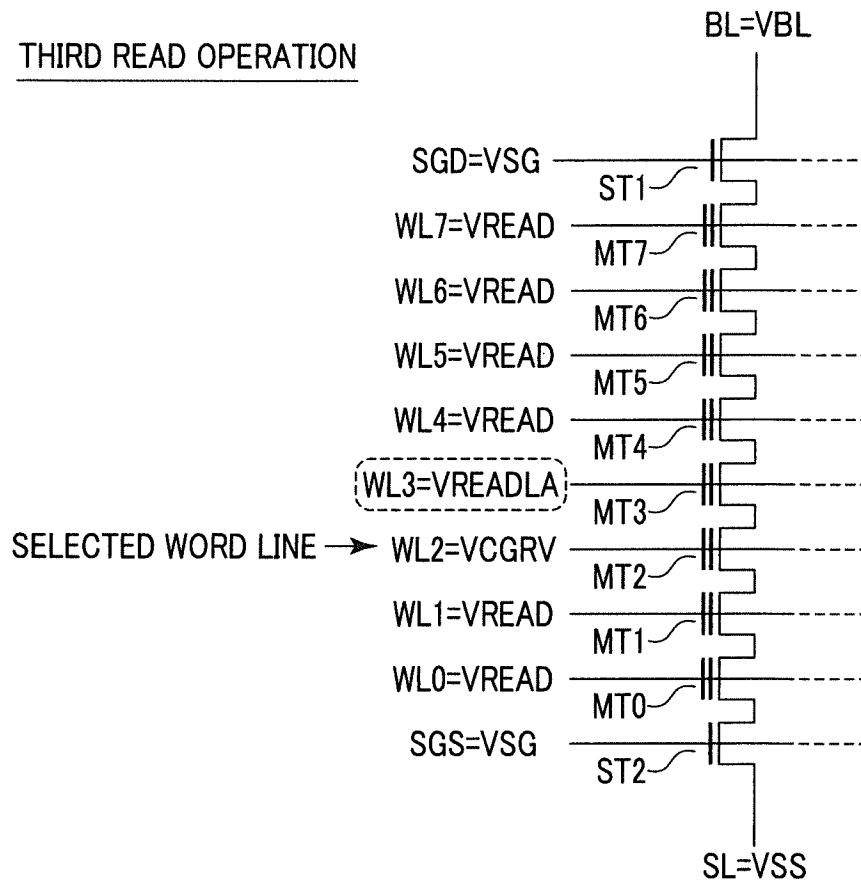
THIRD READ OPERATION

FIG. 14

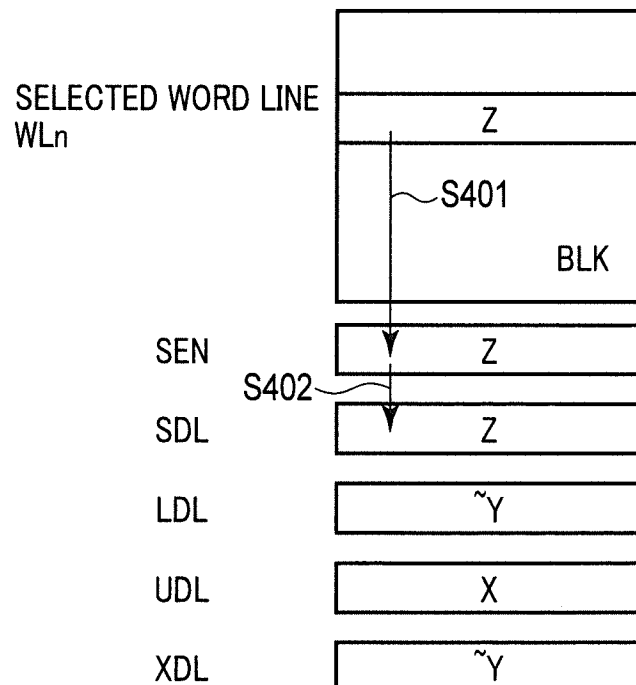


FIG. 15

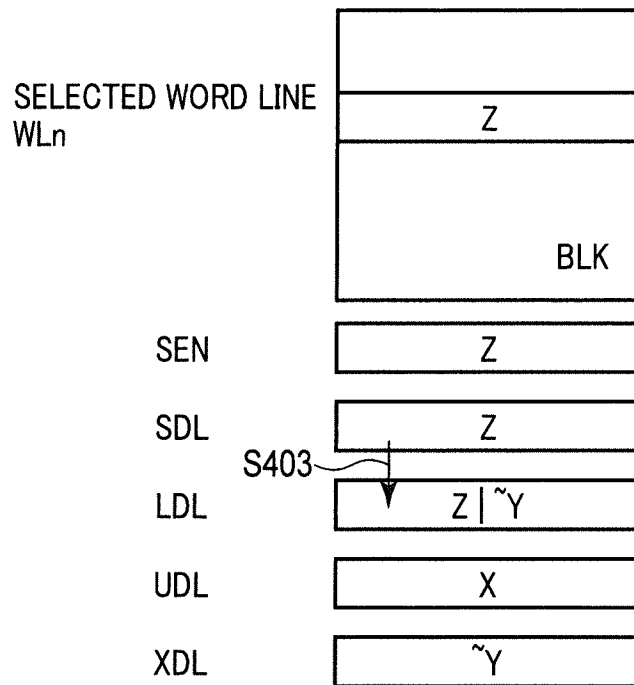


FIG. 16

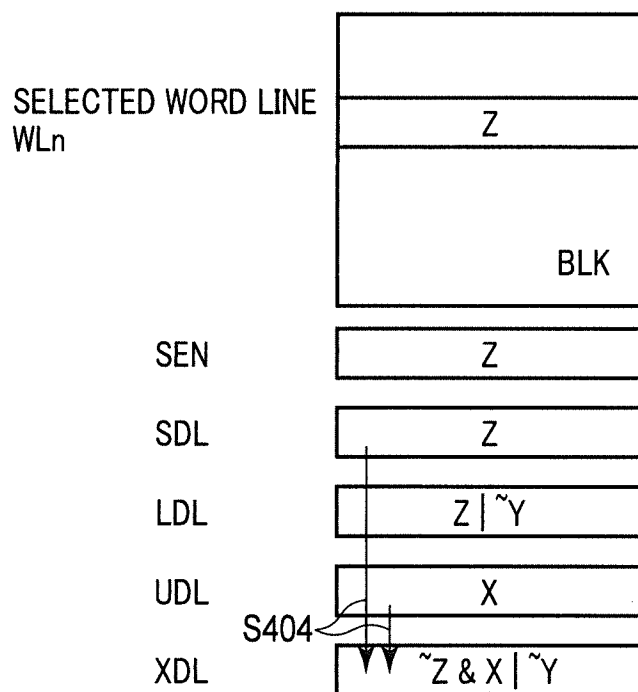


FIG. 17

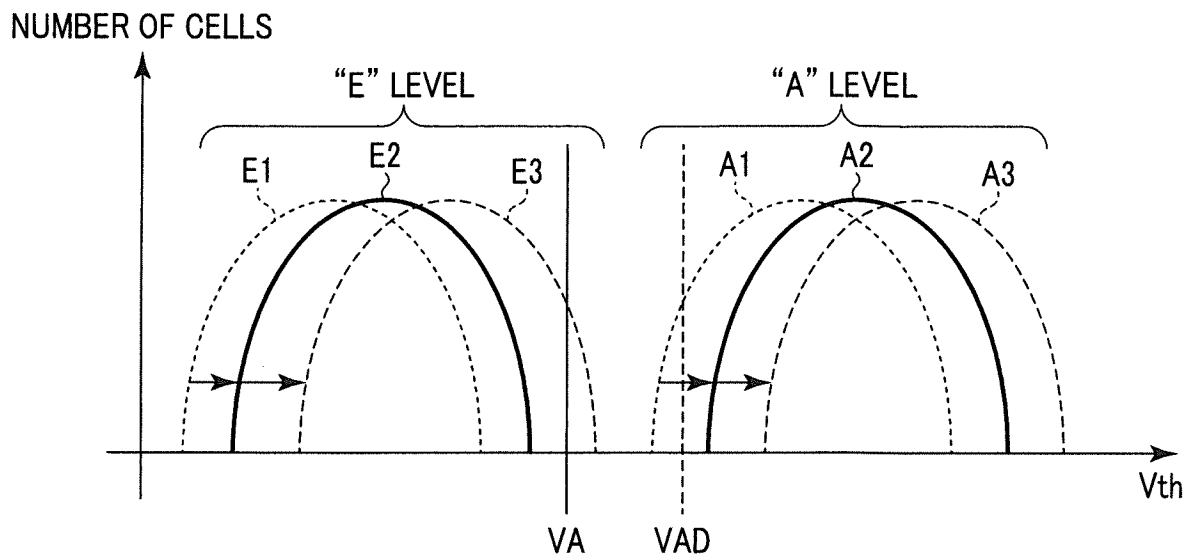


FIG. 18

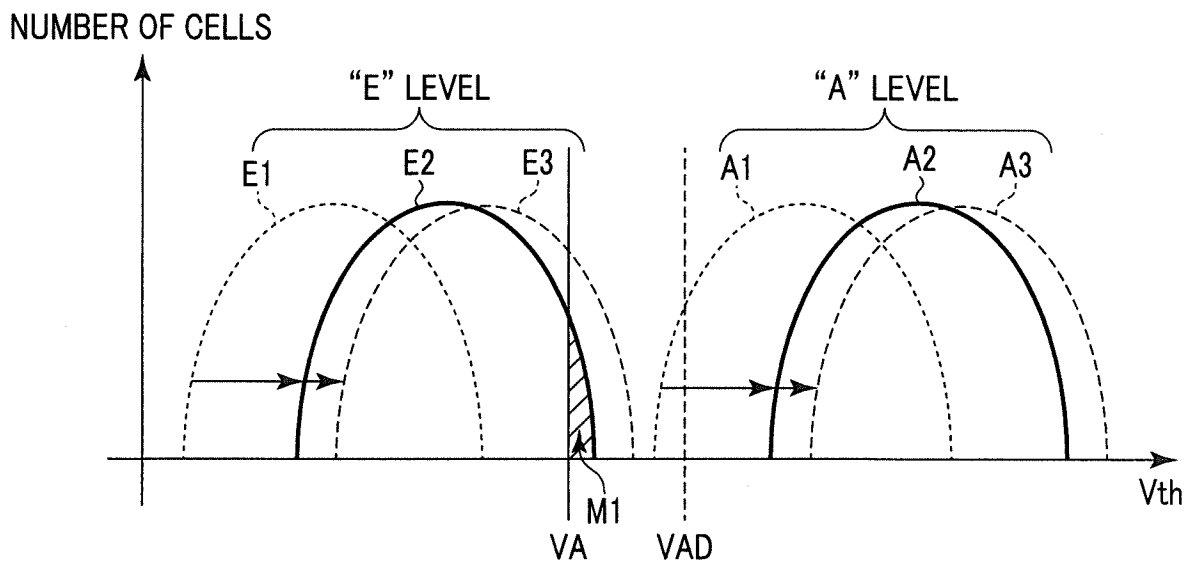


FIG. 19

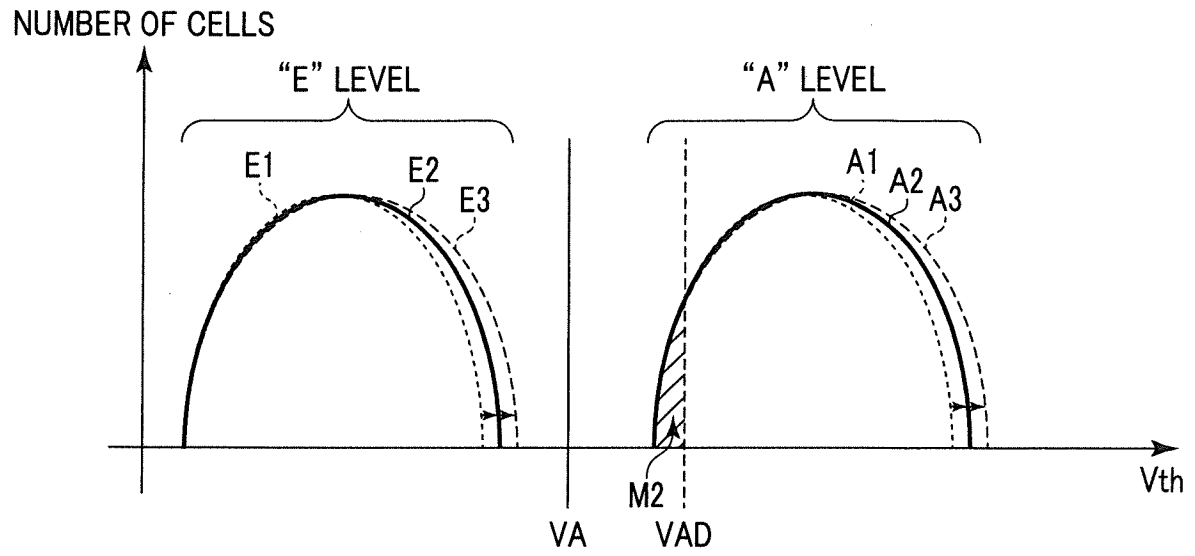


FIG. 20

 $\sim \text{SEN} \rightarrow \text{LDL}(\text{S302})$

UDL(MT _{n+1})	E(MT _n)				A(MT _n)			
	0(E)		1(A)		0(E)		1(A)	
Effect	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	-	-	-	-	-	-	-	-
LDL	1	0	1	0	0	0	0	0
SDL	0	1	0	1	1	1	1	1
SEN	0	1	0	1	1	1	1	1

M1
M1

FIG. 21

LDL→XDL(S303)

UDL(MT _{n+1})	E(MT _n)				A(MT _n)			
	0(E)		1(A)		0(E)		1(A)	
	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	1	0	1	0	0	0	0	0
LDL	1	0	1	0	0	0	0	0
SDL	0	1	0	1	1	1	1	1
SEN	0	1	0	1	1	1	1	1

M1
M1

FIG. 22

SEN→SDL(S402)

UDL(MT _{n+1})	E(MT _n)				A(MT _n)			
	0(E)		1(A)		0(E)		1(A)	
	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	1	0	1	0	0	0	0	0
LDL	1	0	1	0	0	0	0	0
SDL	0	0	0	0	0	1	0	1
SEN	0	0	0	0	0	1	0	1

M1
M1
M2
M2

FIG. 23

SDL | LDL → LDL(S403)

	E(MT _n)				A(MT _n)			
UDL(MT _{n+1})	0(E)		1(A)		0(E)		1(A)	
Effect	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	1	0	1	0	0	0	0	0
LDL	1	0	1	0	0	1	0	1
SDL	0	0	0	0	0	1	0	1
SEN	0	0	0	0	0	1	0	1

M1
M1
M2
M2

FIG. 24

~SDL & UDL | XDL → XDL(S404)

	E(MT _n)				A(MT _n)			
UDL(MT _{n+1})	0(E)		1(A)		0(E)		1(A)	
Effect	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	1	0	1	1	0	0	1	0
LDL	1	0	1	0	0	1	0	1
SDL	0	0	0	0	0	1	0	1
SEN	0	0	0	0	0	1	0	1

M1
M1
M2
M2

FIG. 25

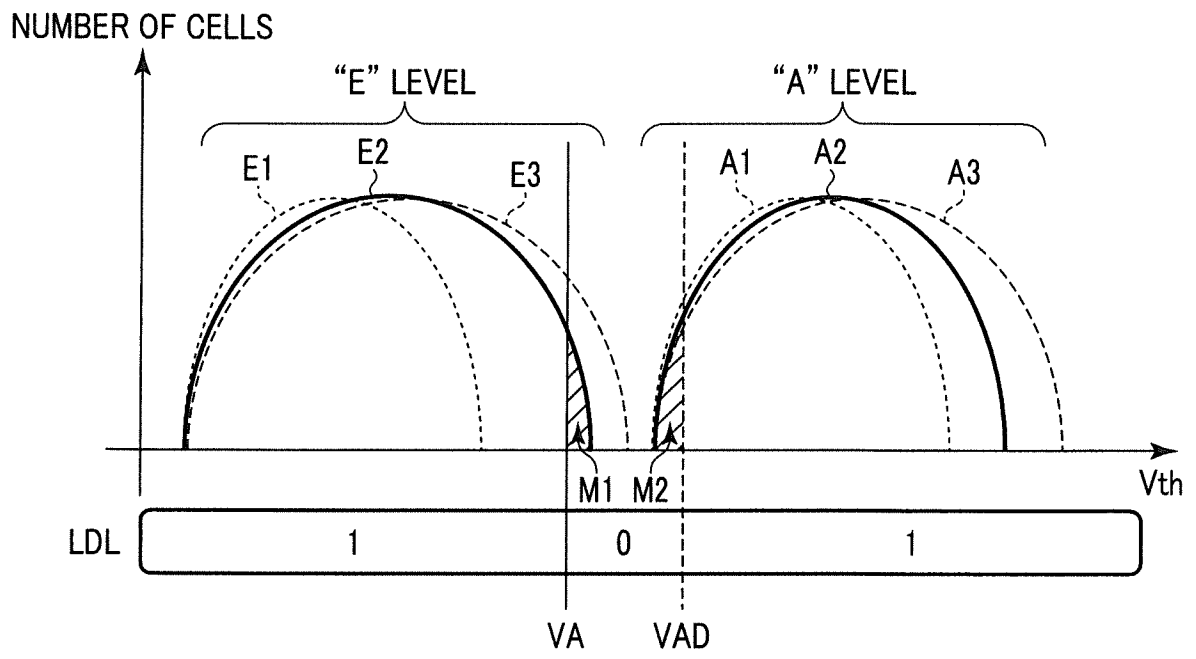


FIG. 26

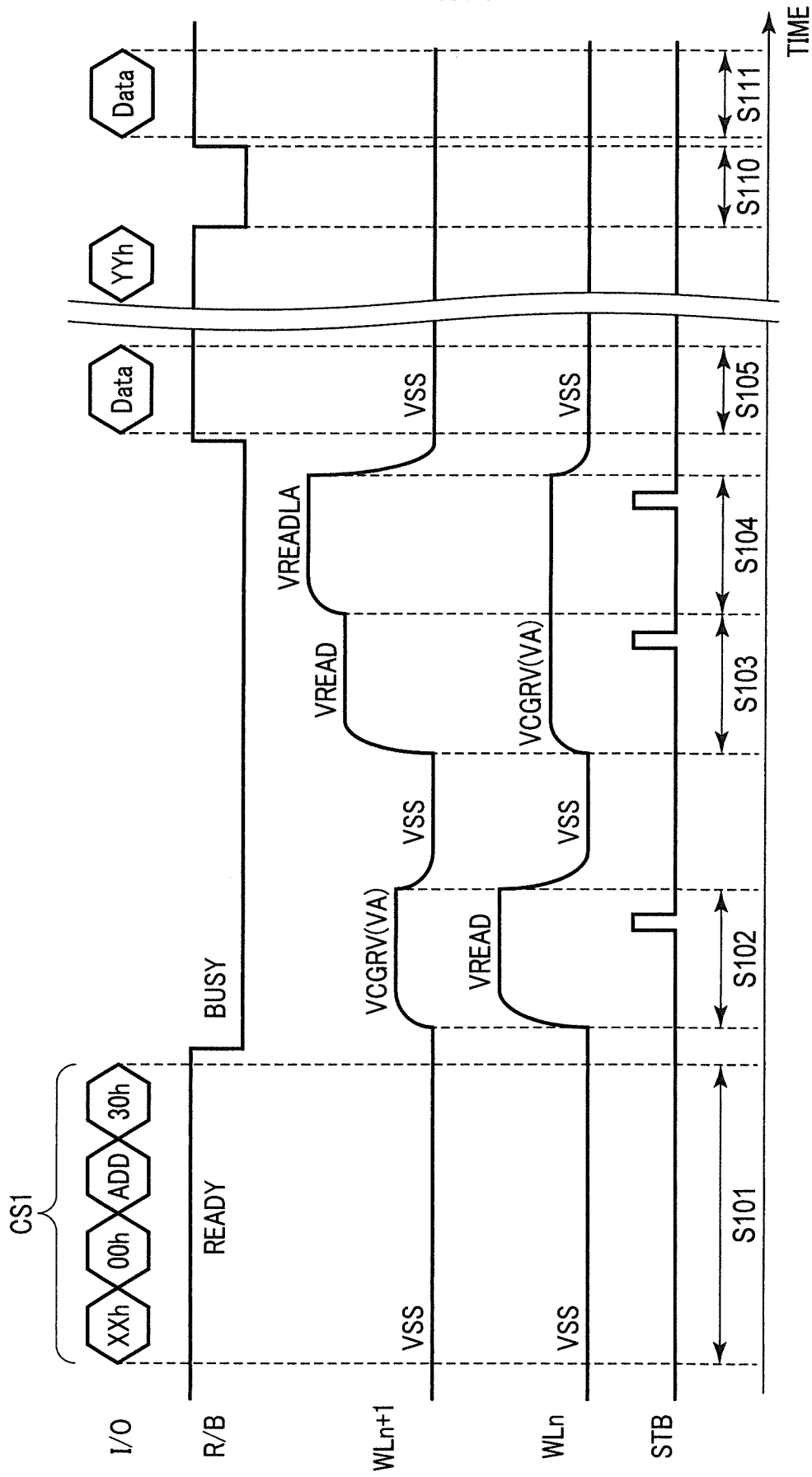


FIG. 27

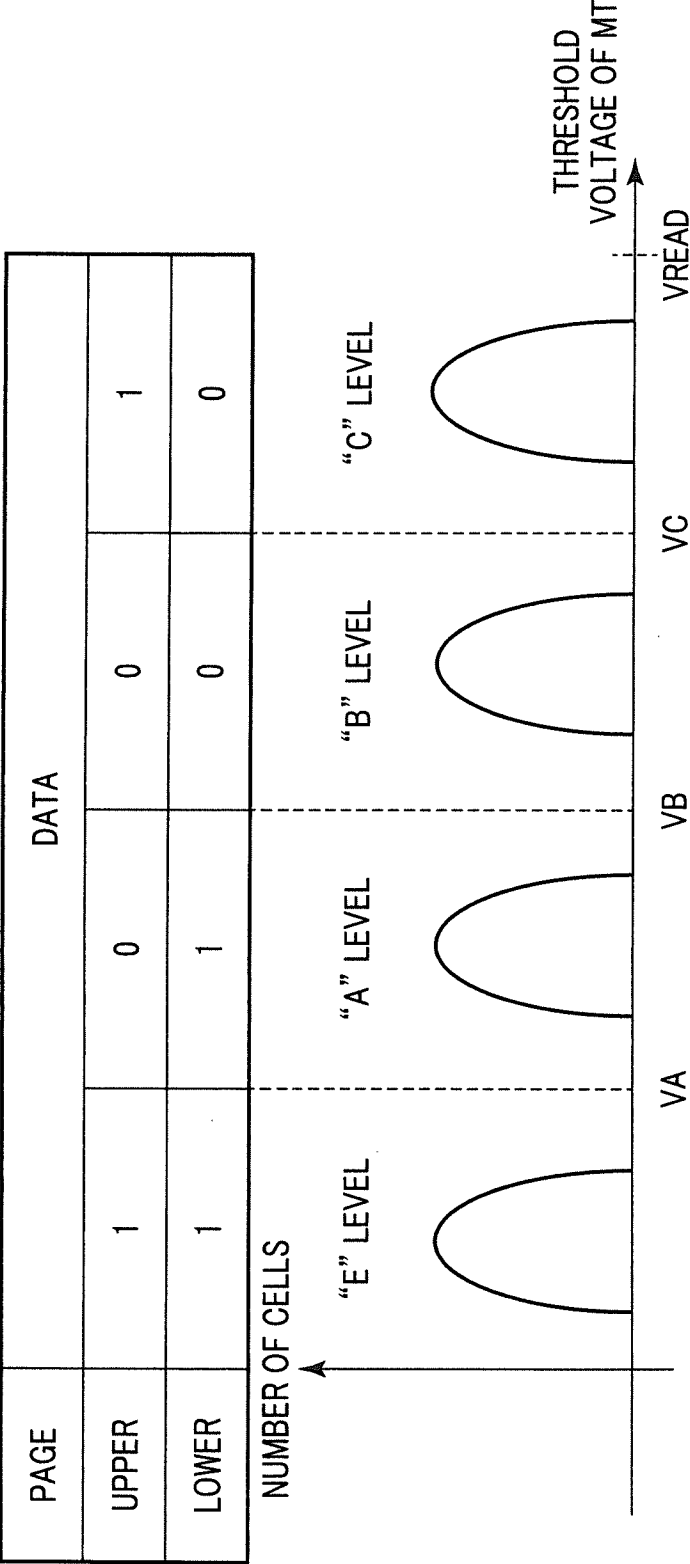
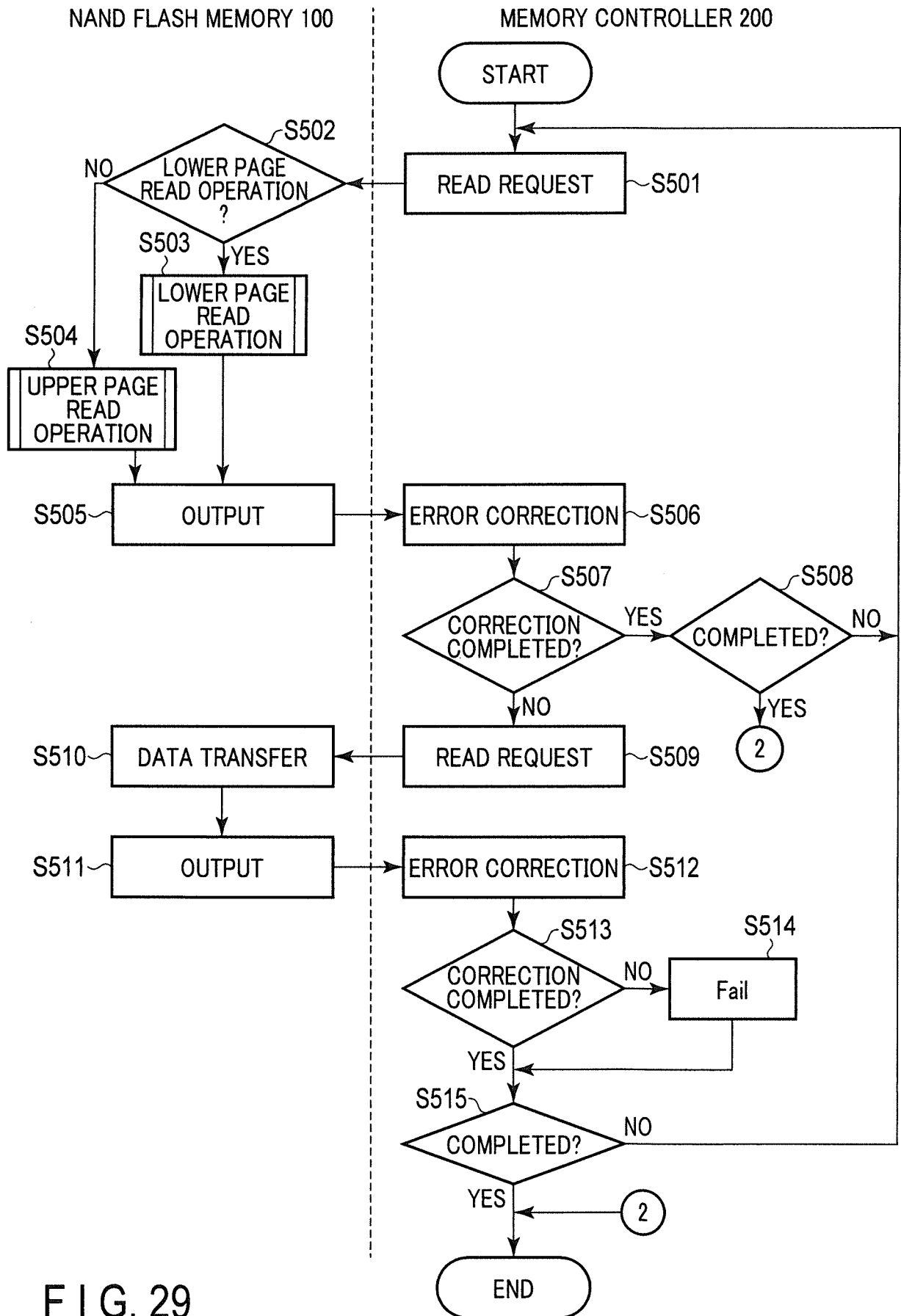


FIG. 28



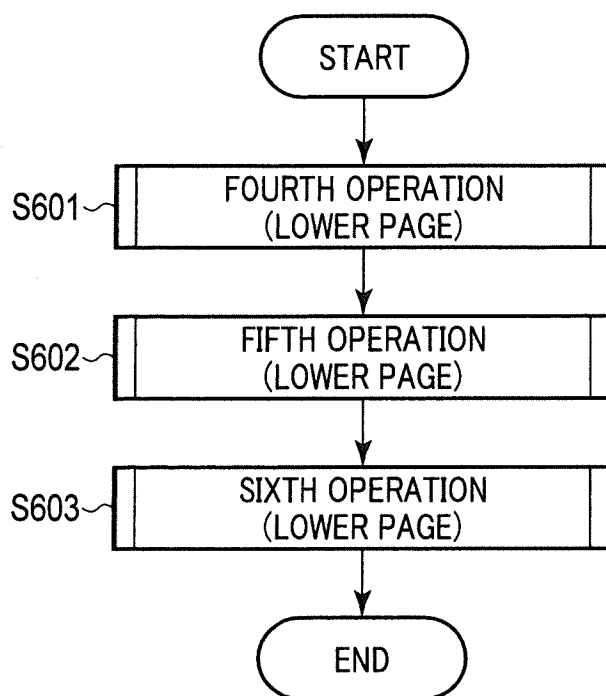


FIG. 30

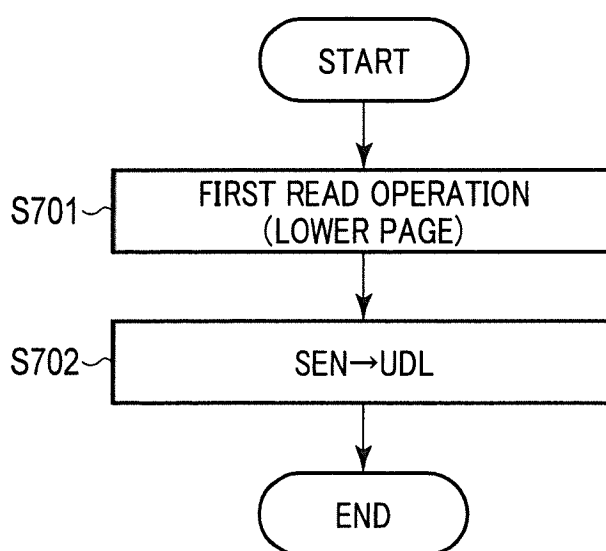


FIG. 31

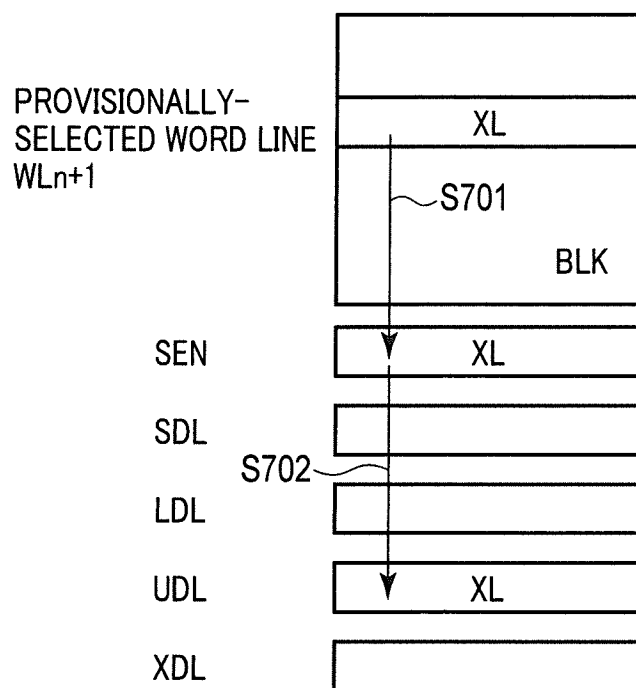


FIG. 32

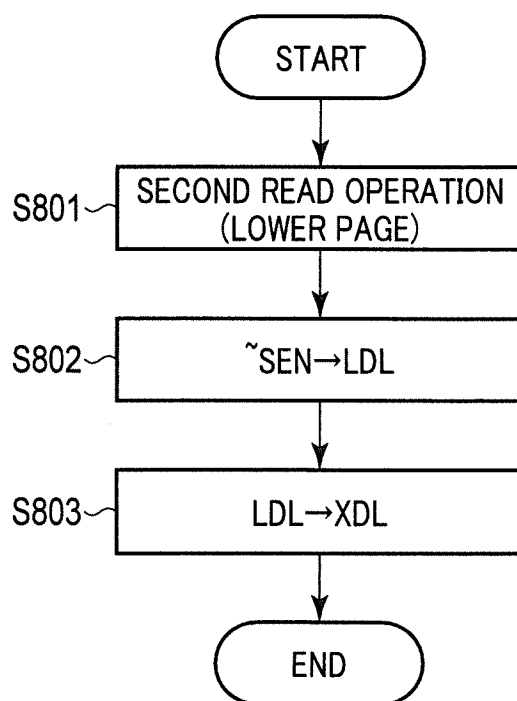


FIG. 33

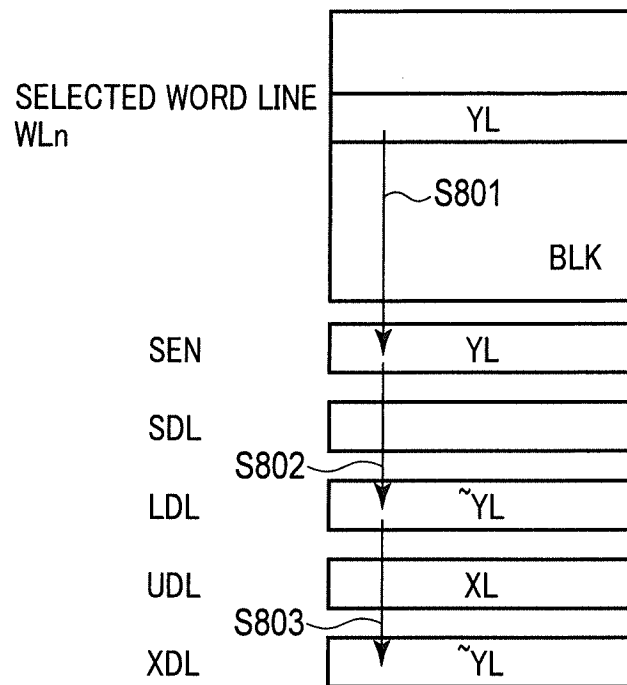


FIG. 34

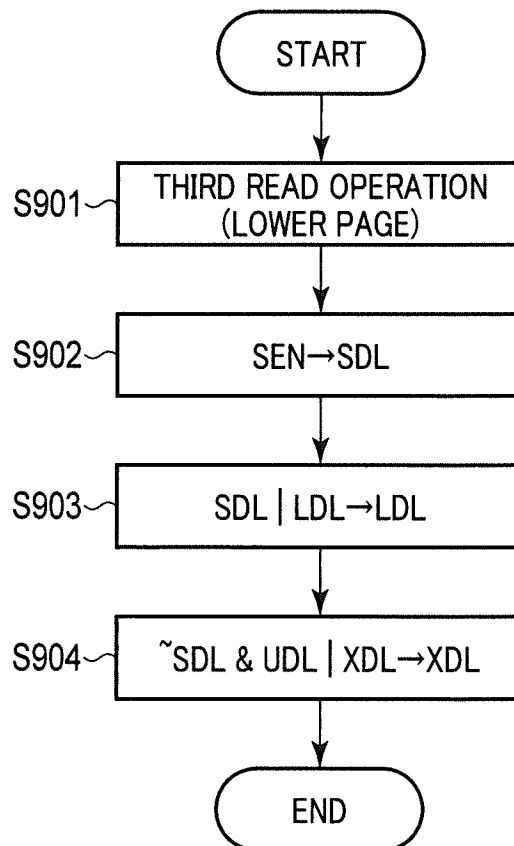


FIG. 35

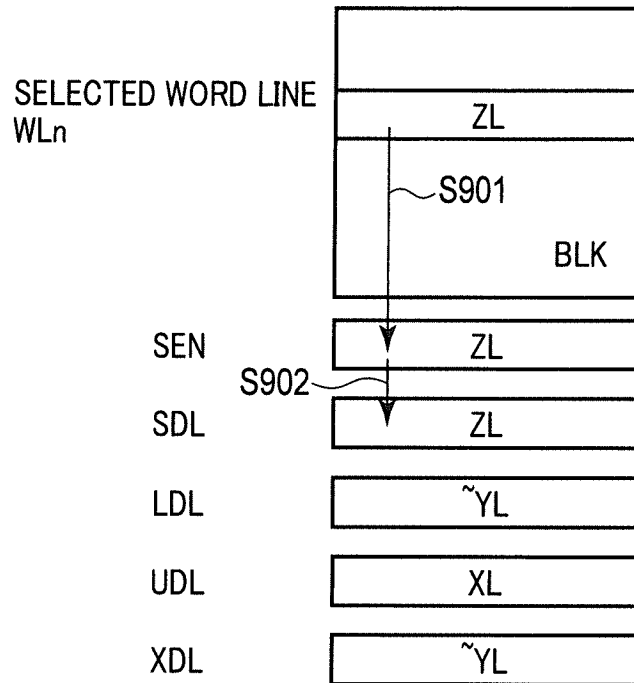


FIG. 36

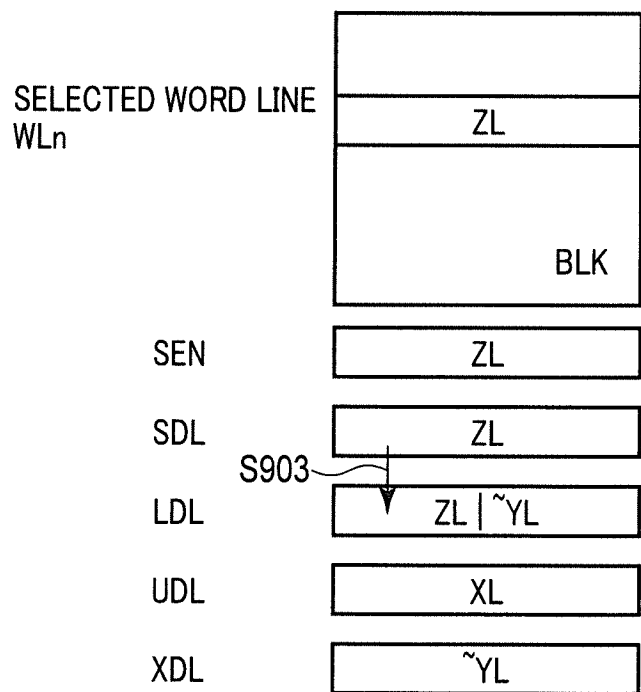


FIG. 37

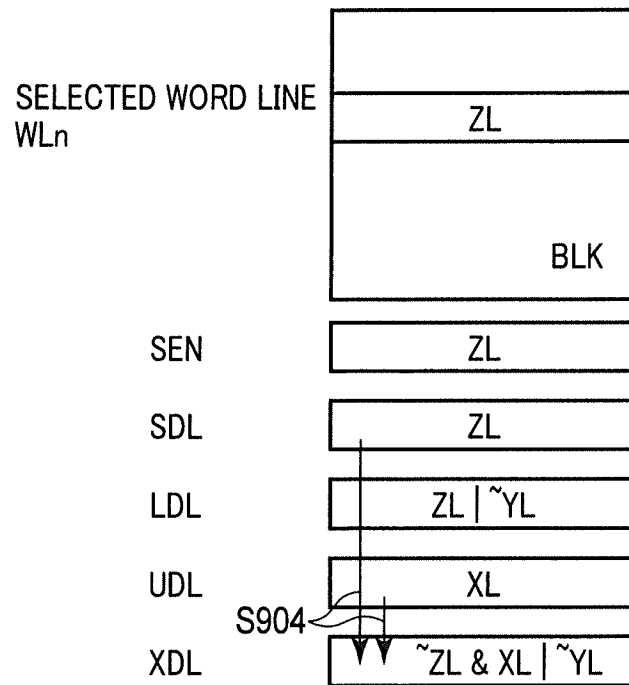


FIG. 38

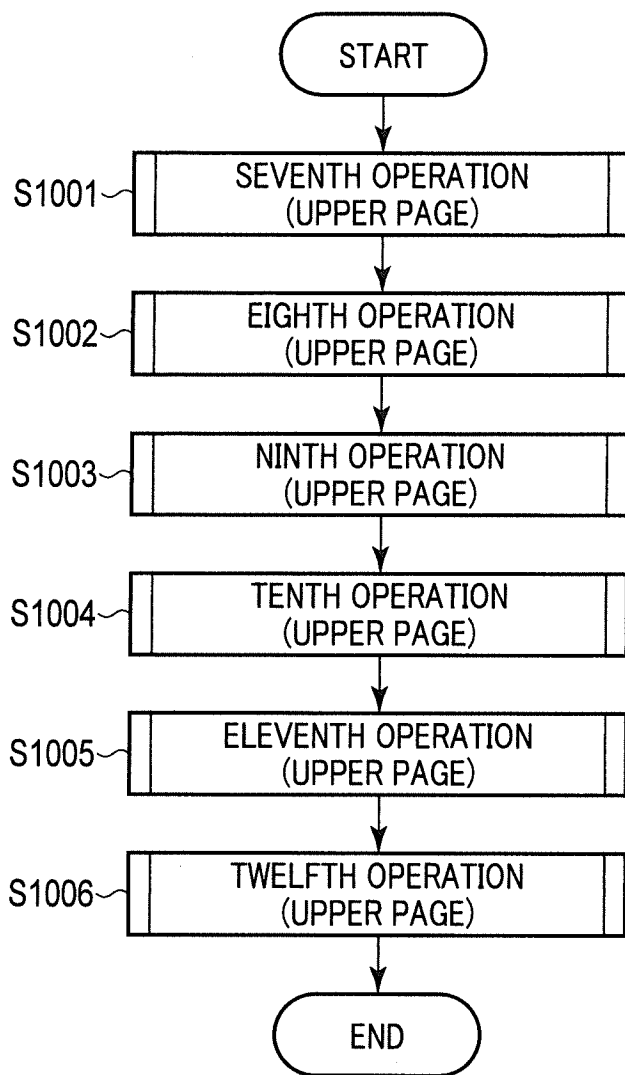


FIG. 39

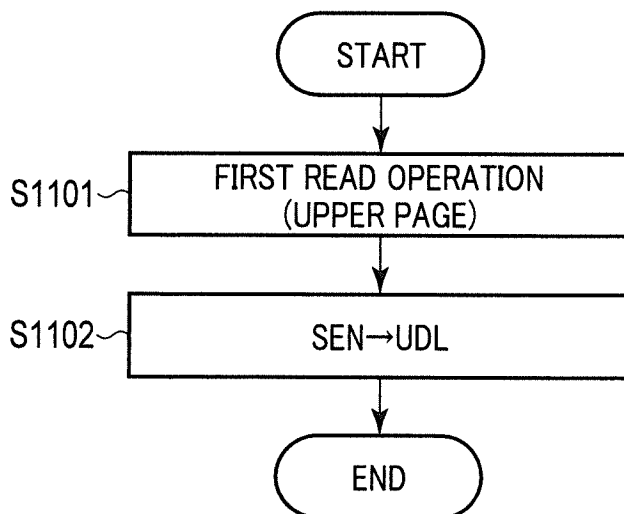


FIG. 40

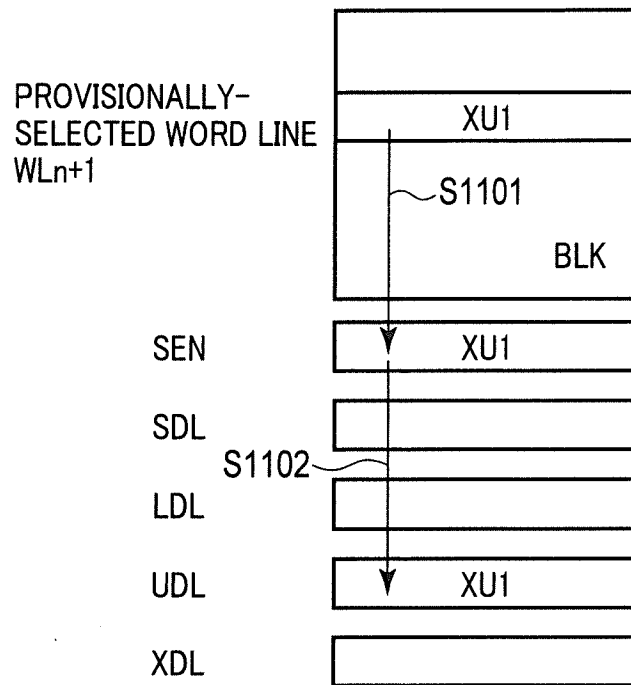


FIG. 41

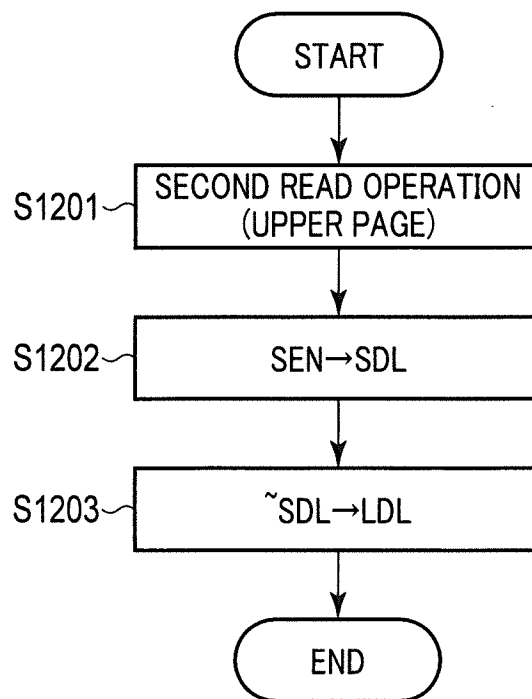


FIG. 42

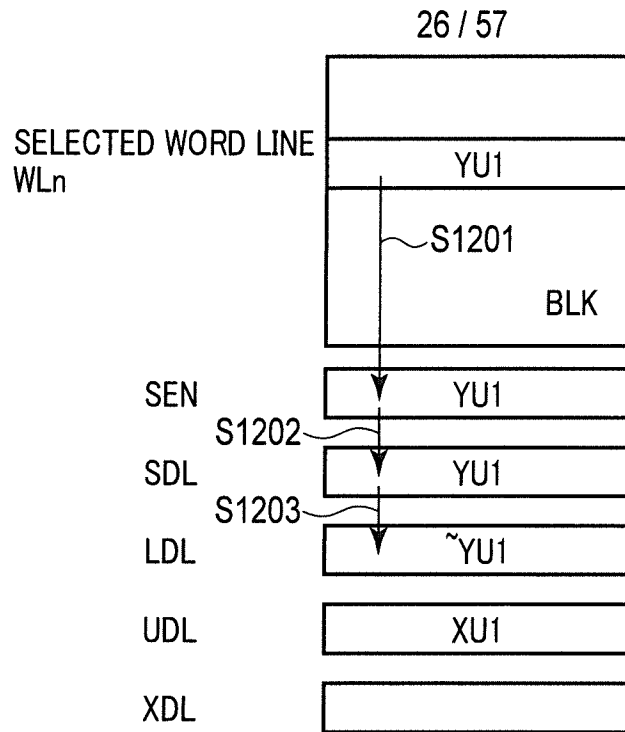


FIG. 43

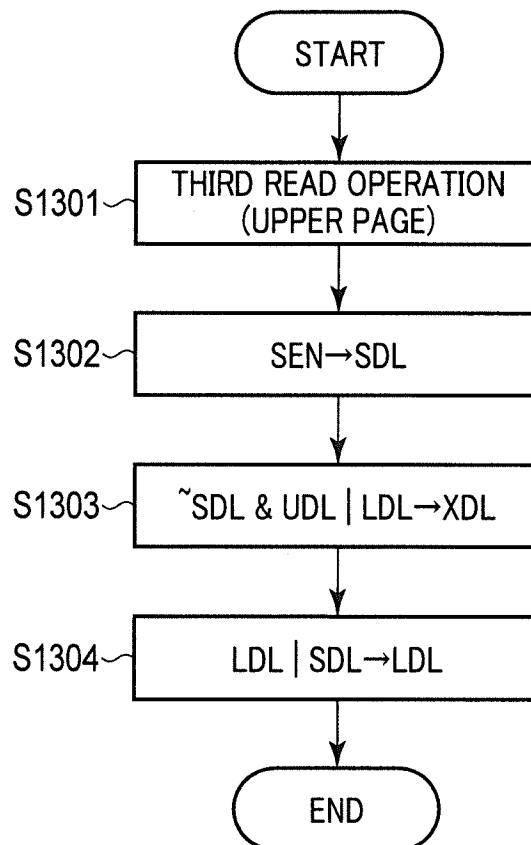


FIG. 44

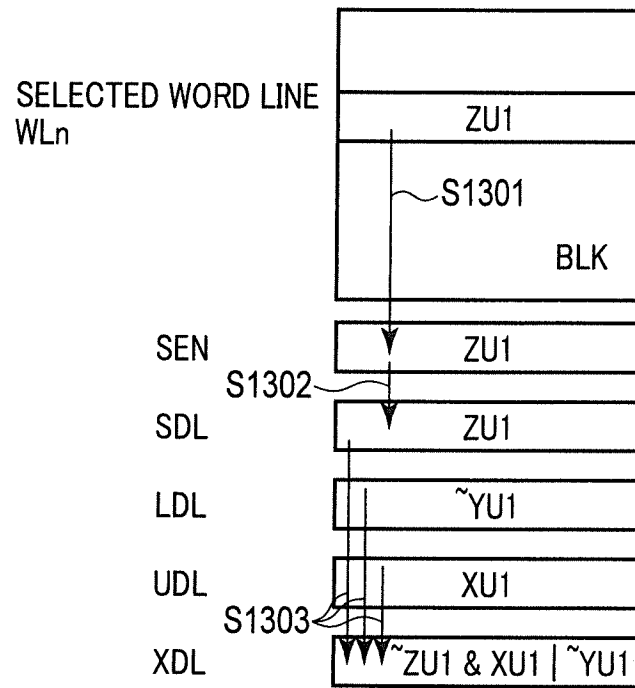


FIG. 45

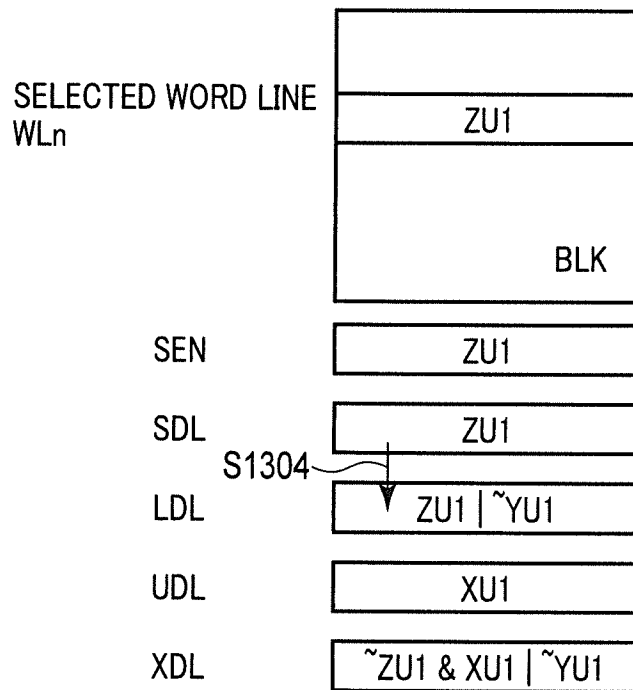


FIG. 46

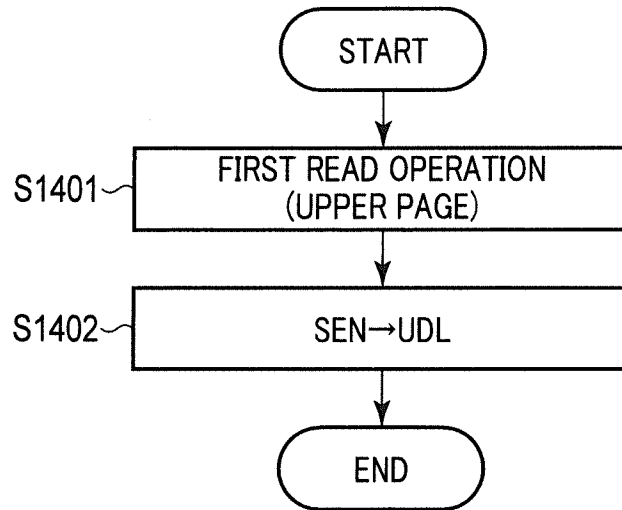


FIG. 47

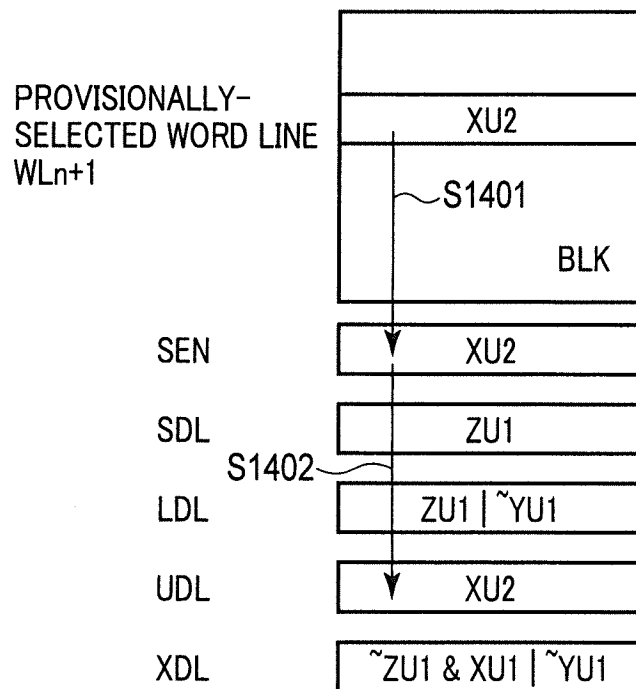


FIG. 48

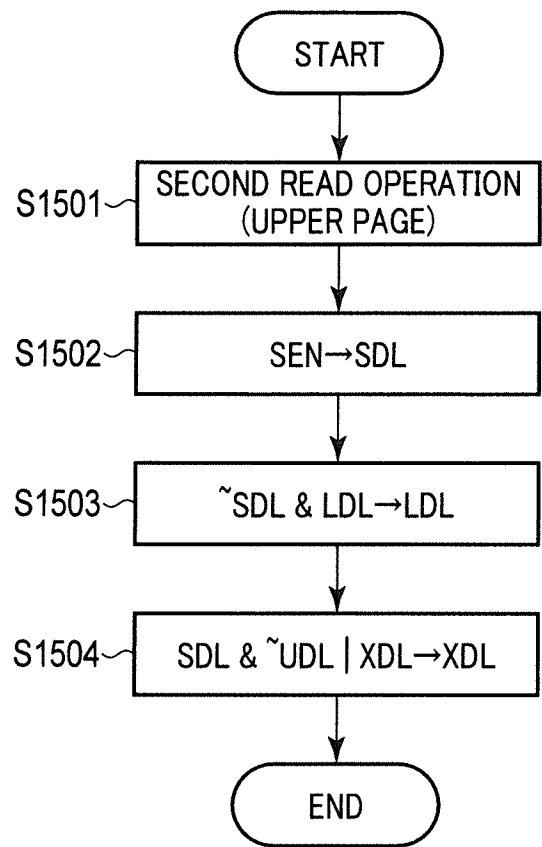


FIG. 49

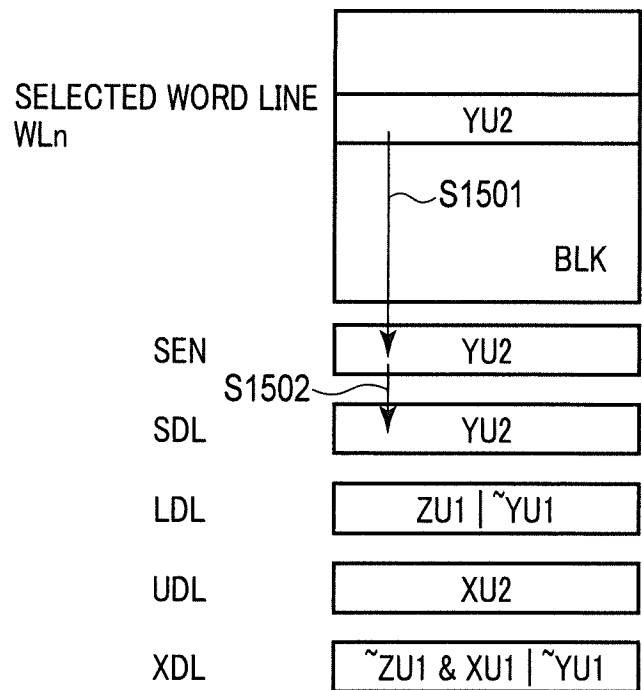


FIG. 50

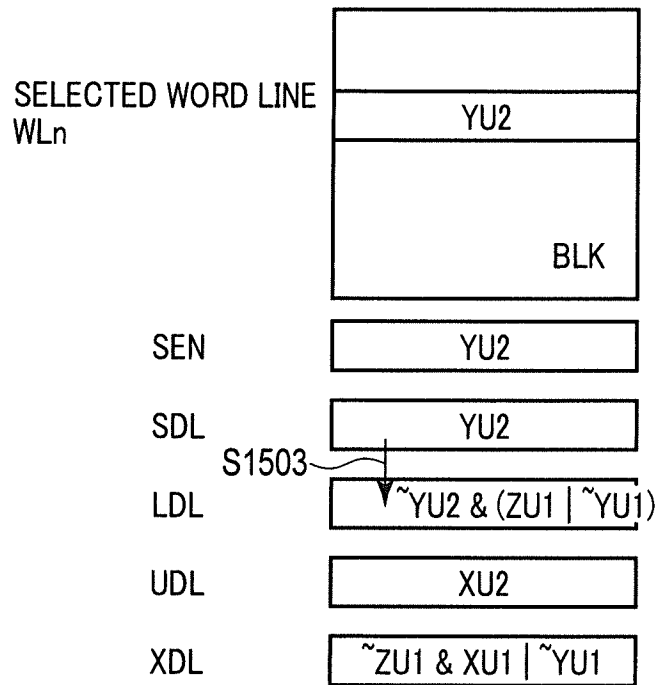


FIG. 51

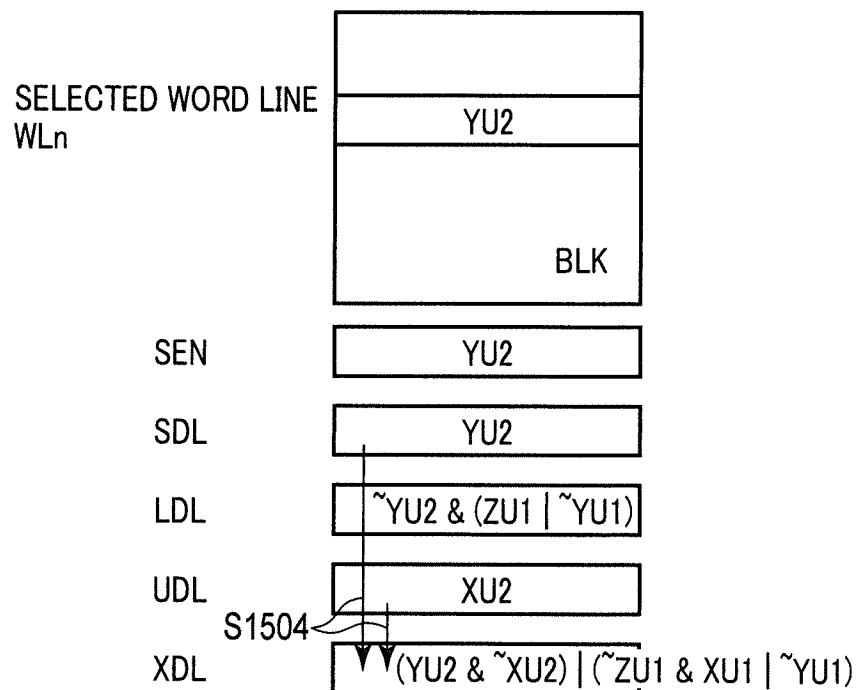


FIG. 52

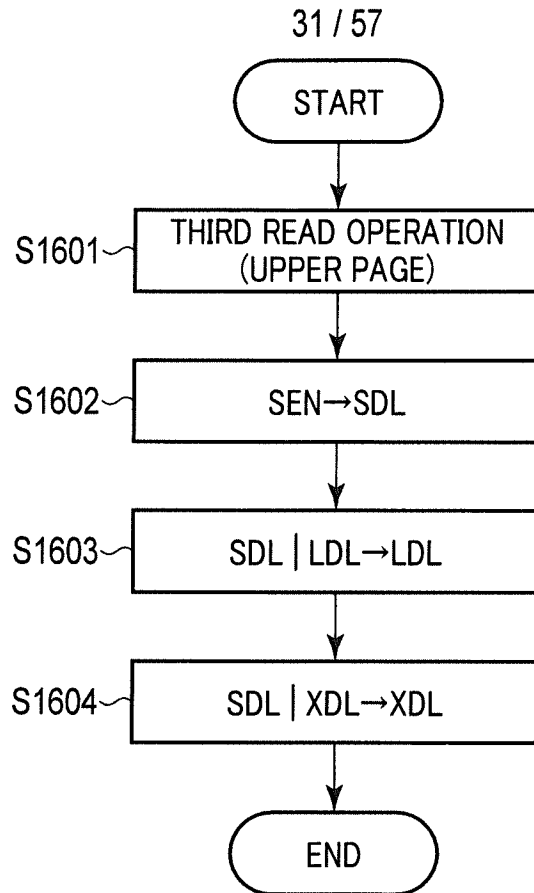


FIG. 53

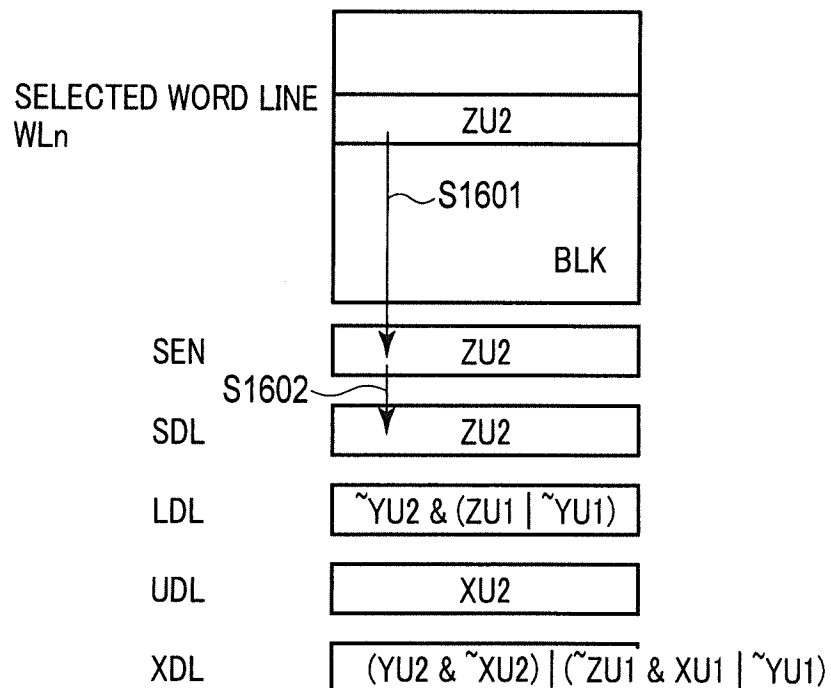


FIG. 54

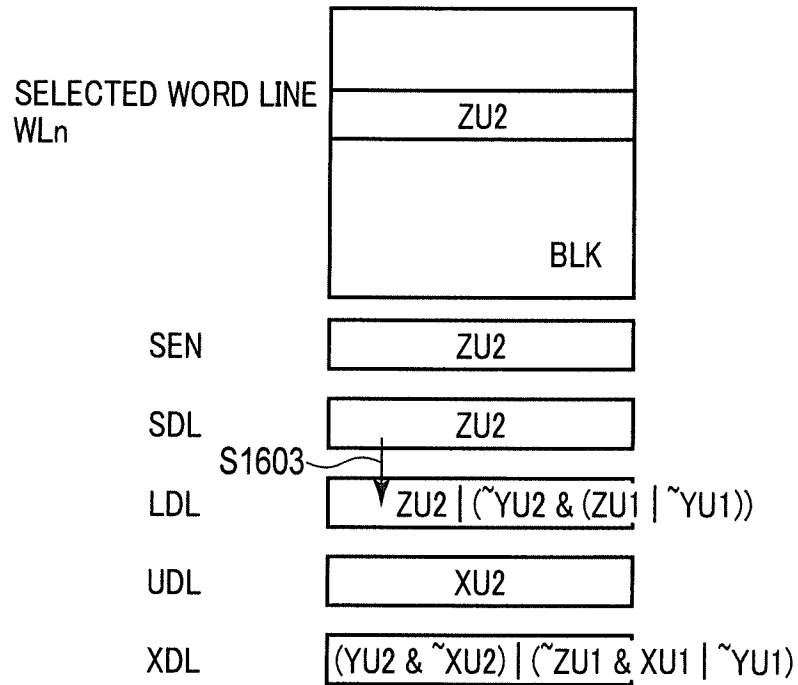


FIG. 55

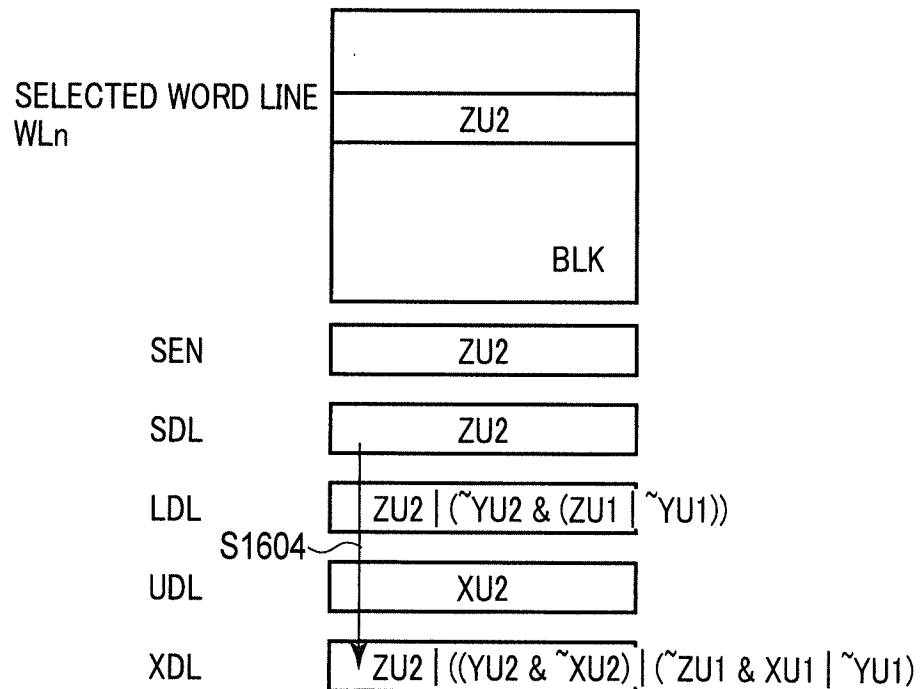


FIG. 56

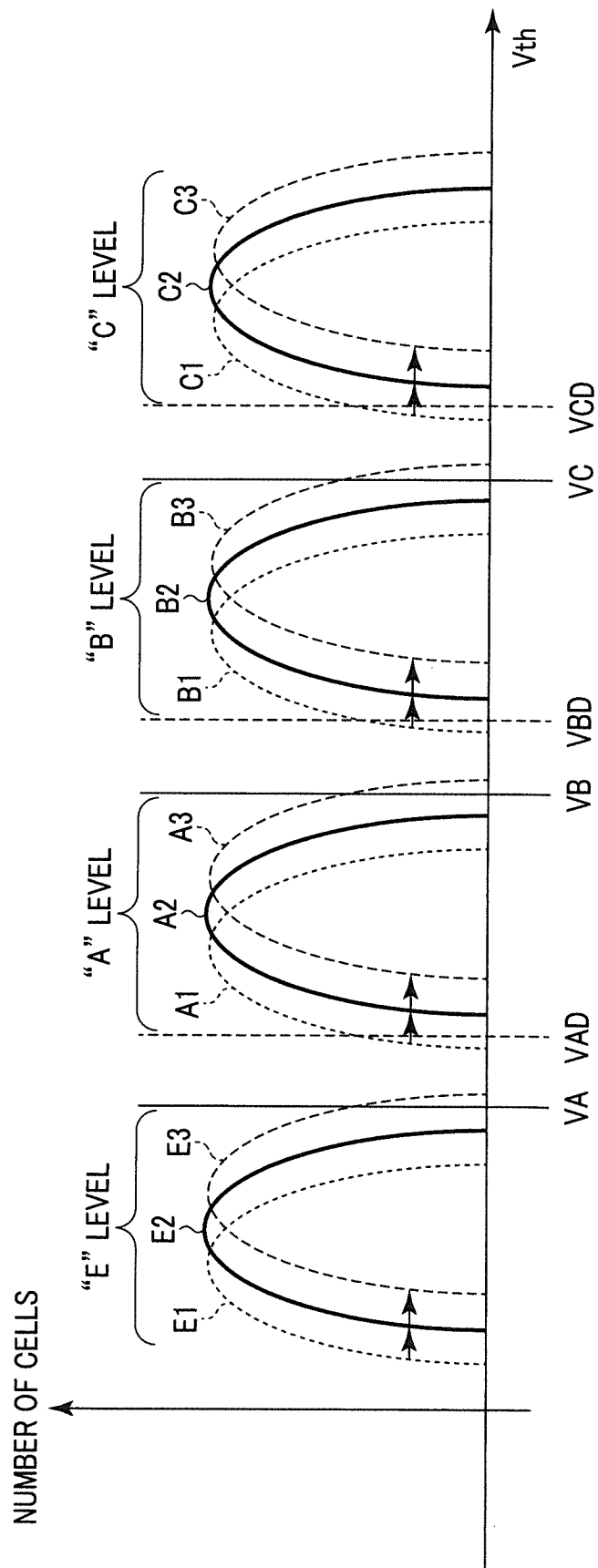


FIG. 57

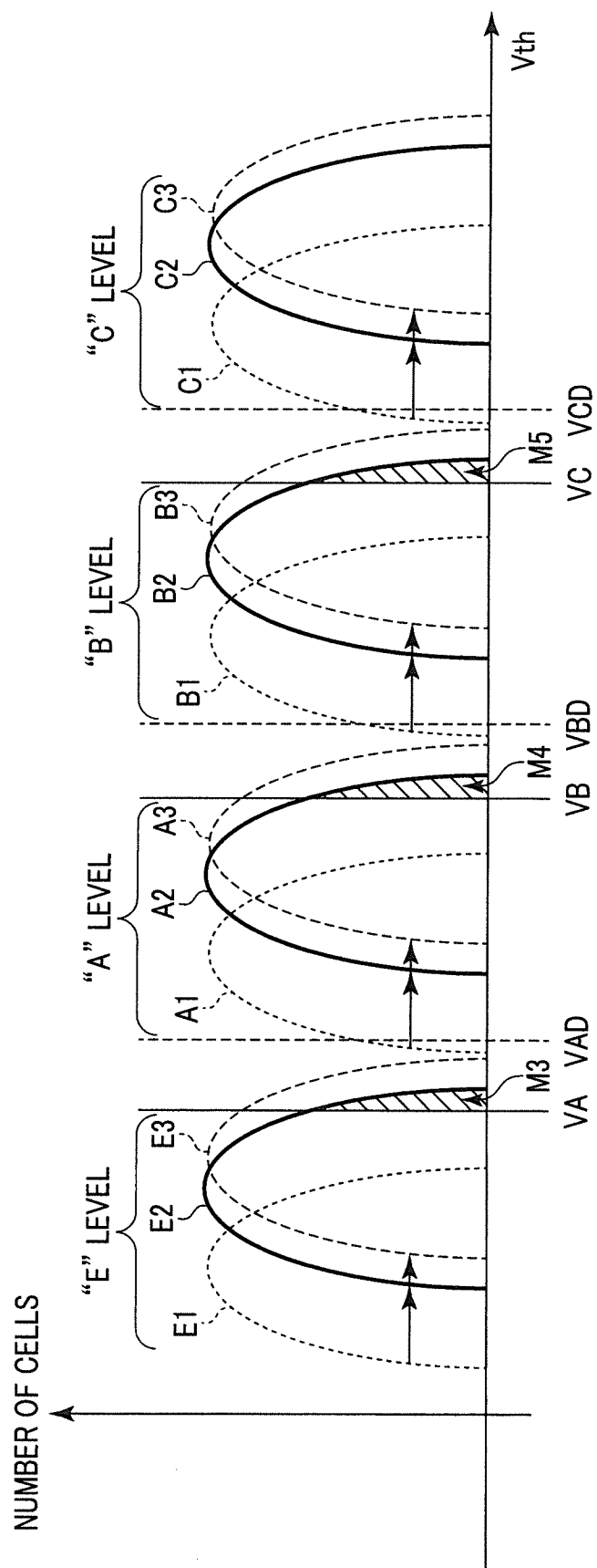


FIG. 58

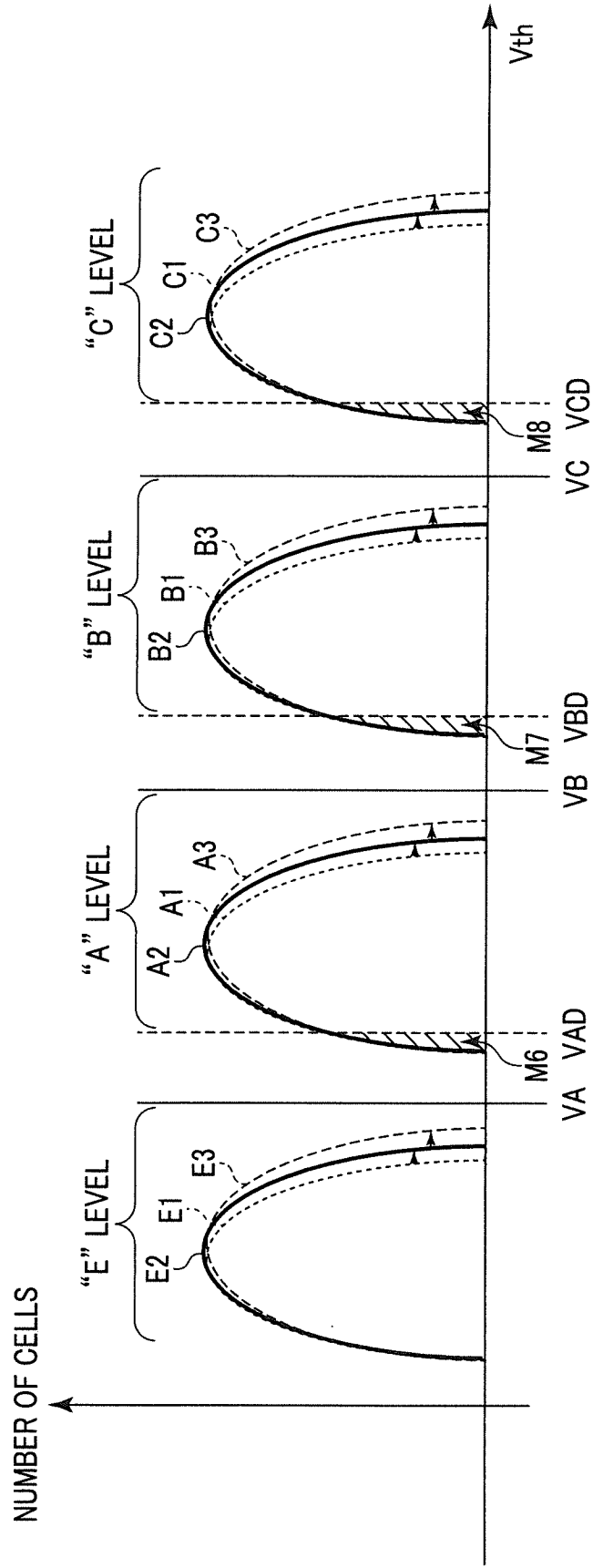


FIG. 59

$\sim \text{SEN} \rightarrow \text{LDL}(\text{S802})$

UDL(MT _n +1)	E(MT _n)			A(MT _n)			B(MT _n)			C(MT _n)		
	0(E/A)	1(B/C)		0(E/A)	1(B/C)		0(E/A)	1(B/C)		0(E/A)	1(B/C)	
Effect	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	-	-	-	-	-	-	-	-	-	-	-	-
LDL	1	1	1	1	0	0	0	0	0	0	0	0
SDL	0	0	0	0	0	0	0	0	0	0	0	0
SEN	0	0	0	0	1	1	1	1	1	1	1	1

M4

M4

FIG. 60

LDL→XDL(S803)

	E(MT _n)						A(MT _n)						B(MT _n)						C(MT _n)					
	0(E/A)		1(B/C)		1(B/C)		0(E/A)		0(E/A)		1(B/C)		0(E/A)		0(E/A)		1(B/C)		0(E/A)		0(E/A)		1(B/C)	
UDL(MT _{n+1})	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
Effect																								
XDL	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
LDL	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SDL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SEN	0	0	0	0	0	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	

M4

M4

FIG. 61

SEN→SDL(S902)

UDL(MT _n +1)	E(MT _n)			A(MT _n)			B(MT _n)			C(MT _n)		
	0(E/A)	1(B/C)		0(E/A)	1(B/C)		0(E/A)	1(B/C)		0(E/A)	1(B/C)	
Effect	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	1	1	1	1	0	0	1	0	0	0	0	0
LDL	1	1	1	1	0	0	1	0	0	0	0	0
SDL	0	0	0	0	0	0	0	0	0	0	0	0
SEN	0	0	0	0	0	0	0	0	0	0	0	0

M4

M4

M4

M7

M7

M7

FIG. 62

SDL | LDL → LDL(S903)

UDL(MT _n +1)	E(MT _n)			A(MT _n)			B(MT _n)			C(MT _n)		
	0(E/A)	1(B/C)		0(E/A)	1(B/C)		0(E/A)	1(B/C)		0(E/A)	1(B/C)	
		SMALL	LARGE		SMALL	LARGE		SMALL	LARGE		SMALL	LARGE
XDL	1	1	1	1	0	0	0	0	0	0	0	0
LDL	1	1	1	1	0	0	1	0	1	1	1	1
SDL	0	0	0	0	0	0	0	0	1	1	1	1
SEN	0	0	0	0	0	0	1	0	1	1	1	1

Diagram illustrating the state transitions for the sequence SDL | LDL → LDL(S903). The table shows the values for E(MT_n), A(MT_n), B(MT_n), and C(MT_n) across different effects (XDL, LDL, SDL, SEN). Dashed circles and arrows highlight specific transitions between states, labeled M4 and M7.

FIG. 63

~SDL & UDL | XDL → XDL(S904)

UDL(MT _{n+1}) Effect	E(MT _n)						A(MT _n)						B(MT _n)						C(MT _n)					
	0(E/A)		1(B/C)		1(B/C)		0(E/A)		1(B/C)		1(B/C)		0(E/A)		1(B/C)		1(B/C)		0(E/A)		1(B/C)		1(B/C)	
	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	1	1	1	1	1	1	0	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0
LDL	1	1	1	1	1	1	0	0	1	1	0	0	0	0	1	1	0	1	1	1	1	1	1	1
SDL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	1
SEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	1

M4

M4

M7

M7

FIG. 64

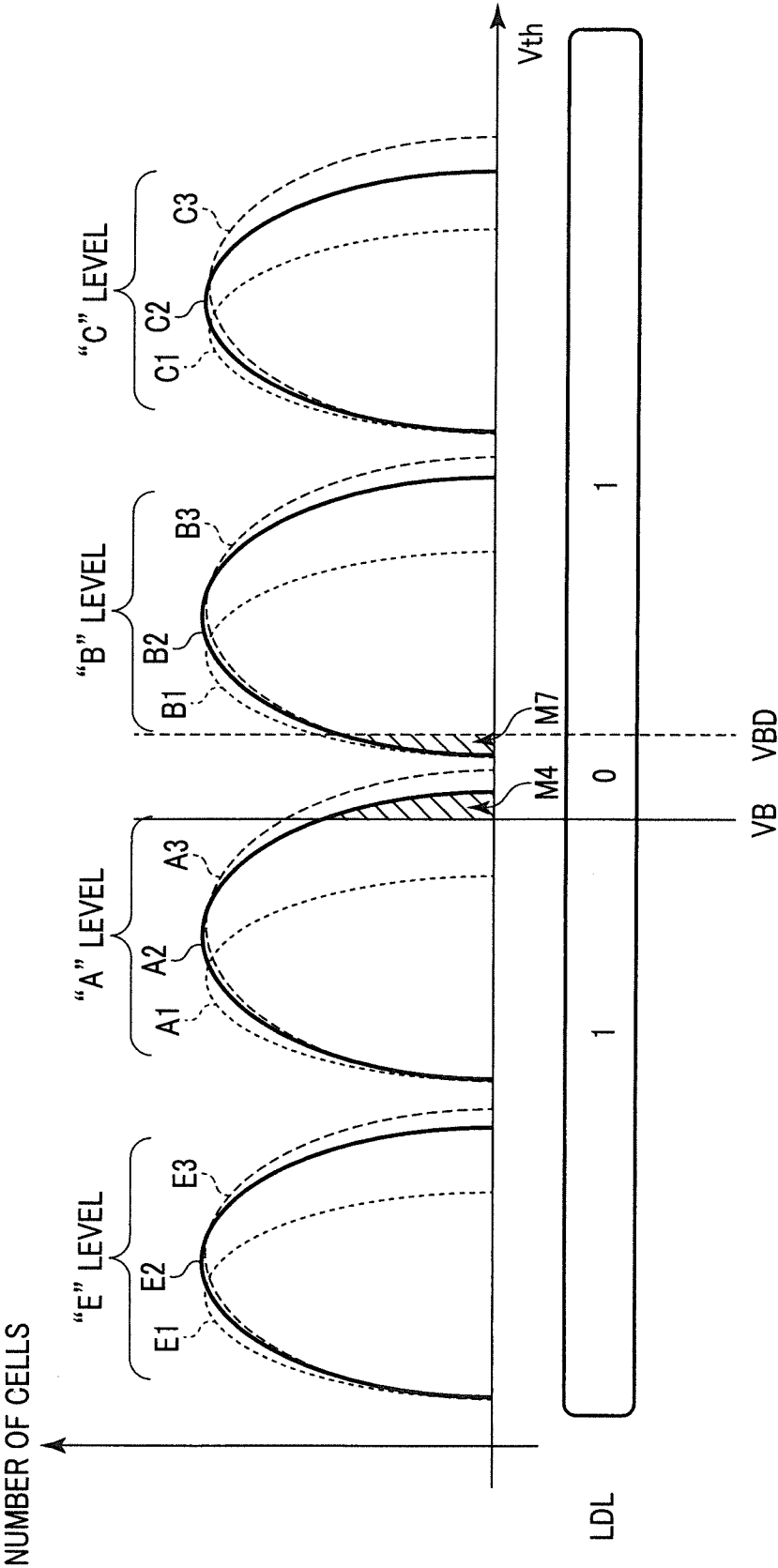


FIG. 65

SEN → SDL(S1202)

UDL(MT _n +1)	E(MT _n)			A(MT _n)			B(MT _n)			C(MT _n)		
	0(E/C)		1(A/B)	0(E/C)		1(A/B)	0(E/C)		1(A/B)	0(E/C)		1(A/B)
	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	-	-	-	-	-	-	-	-	-	-	-	-
LDL	-	-	-	-	-	-	-	-	-	-	-	-
SDL	0	1	0	1	1	1	1	1	1	1	1	1
SEN	0	1	0	1	1	1	1	1	1	1	1	1

M3

M3

FIG. 66

[illegible]

FIG. 67

SEN→SDL(S1303)

UDL(MT _{n+1})	E(MT _n)			A(MT _n)			B(MT _n)			C(MT _n)		
	0(E/C)	1(A/B)		0(E/C)	1(A/B)		0(E/C)	1(A/B)		0(E/C)	1(A/B)	
Effect	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	-	-	-	-	-	-	-	-	-	-	-	-
LDL	1	0	1	0	0	0	0	0	0	0	0	0
SDL	0	0	0	0	0	1	1	1	1	1	1	1
SEN	0	0	0	0	0	1	1	1	1	1	1	1

M3

M3

M6

M6

FIG. 68

~SDL & UDL | LDL → XDL(S1303)

UDL(MT _{n+1})	E(MT _n)						A(MT _n)						B(MT _n)						C(MT _n)					
	0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)	
Effect	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	1	0	1	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
LDL	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SDL	0	0	0	0	0	1	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1
SEN	0	0	0	0	0	1	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1

M6

M6

M3

M3

FIG. 69

LDL | SDL → LDL(S1304)

UDL(MT _n +1)	E(MT _n)				A(MT _n)				B(MT _n)				C(MT _n)			
	0(E/C)	1(A/B)			0(E/C)	1(A/B)			0(E/C)	1(A/B)			0(E/C)	1(A/B)		
Effect		SMALL	LARGE		SMALL	LARGE			SMALL	LARGE			SMALL	LARGE		
XDL	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0
LDL	1	0	1	0	0	1	0	1	1	1	1	1	1	1	1	1
SDL	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1
SEN	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1

M3

M3

M6

M6

FIG. 70

SEN→SDL(S1502)

UDL(MT _n +1)	E(MT _n)						A(MT _n)						B(MT _n)						C(MT _n)					
	0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)	
	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	1	0	1	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
LDL	1	0	1	0	0	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1
SDL	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1
SEN	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1

M3

M3

M6

M6

M5

M5

FIG. 71

~SDL & LDL → LDL(S1503)

UDL(MT _n +1)	E(MT _n)						A(MT _n)						B(MT _n)						C(MT _n)					
	0(E/C)	1(A/B)	1(A/B)	1(A/B)	1(A/B)	1(A/B)	0(E/C)	0(E/C)	0(E/C)	0(E/C)	0(E/C)	0(E/C)	0(E/C)	0(E/C)	0(E/C)	0(E/C)	0(E/C)	0(E/C)	0(E/C)	0(E/C)	0(E/C)	0(E/C)	0(E/C)	0(E/C)
Effect	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	1	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LDL	1	0	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SDL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

M3

M3

M3

M6

M6

M6

M5

M5

M5

FIG. 72

SDL & ~UDL | XDL → XDL(S1504)

E(MT _n)				A(MT _n)				B(MT _n)				C(MT _n)			
0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)	
UDL(MT _{n+1})	0(E/C)	1(A/B)	0(E/C)	1(A/B)	0(E/C)	1(A/B)	0(E/C)	1(A/B)	0(E/C)	1(A/B)	0(E/C)	1(A/B)	0(E/C)	1(A/B)	0(E/C)
Effect	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL
XDL	1	0	1	1	0	0	1	0	0	1	0	0	1	1	0
LDL	1	0	1	0	0	1	0	1	0	0	1	0	0	0	0
SDL	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1
SEN	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1

M3

M3

M6

M6

M5

M5

M5

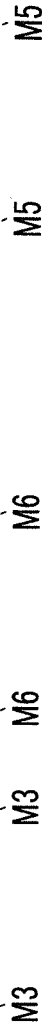


FIG. 73

SEN→SDL(S1602)

	E(MT _n)						A(MT _n)						B(MT _n)						C(MT _n)					
	0(E/C)		1(A/B)		1(A/B)		0(E/C)		1(A/B)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)	
Effect	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	1	0	1	1	0	0	0	1	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	0
LDL	1	0	1	0	0	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
SDL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
SEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	1

M3

M3

M3

M6

M6

M6

M5

M5

M5

M8

M8

M8

FIG. 74

SDL | LDL→LDL(S1603)

UDL(MT _{n+1})	E(MT _n)						A(MT _n)						B(MT _n)						C(MT _n)					
	0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)	
Effect	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL	1	0	1	1	0	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	
LDL	1	0	1	0	0	1	0	1	1	0	0	1	0	0	0	1	0	0	0	0	0	1	0	
SDL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
SEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	

M3

M3

M6

M6

M5

M5

M8

M8

FIG. 75

SDL | XDL → XDL(S1604)

		E(MT _n)				A(MT _n)				B(MT _n)				C(MT _n)			
		0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)		0(E/C)		1(A/B)	
UDL(MT _{n+1})		0(E/C)	1(A/B)	0(E/C)	1(A/B)	0(E/C)	1(A/B)	0(E/C)	1(A/B)	0(E/C)	1(A/B)	0(E/C)	1(A/B)	0(E/C)	1(A/B)	0(E/C)	1(A/B)
Effect		SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE	SMALL	LARGE
XDL		1	0	1	1	0	0	1	0	0	1	0	0	1	1	0	1
LDL		1	0	1	0	0	1	0	1	0	0	0	1	0	0	0	1
SDL		0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
SEN		0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1

M3

M6

M6

M3

M6

M5

M5

M8

M8

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M8

M5

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M6

M6

M3

M3

FIG. 76

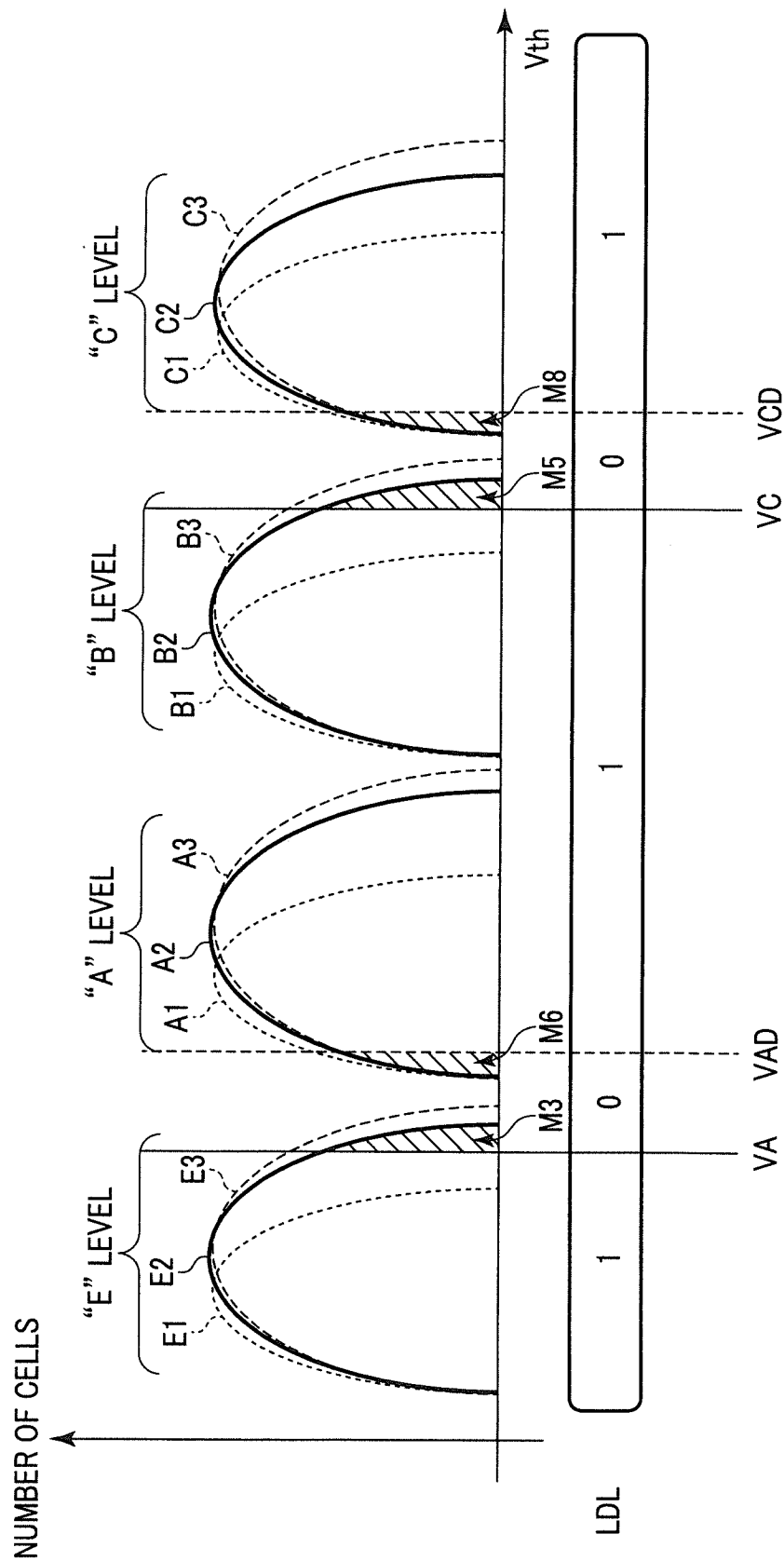


FIG. 77

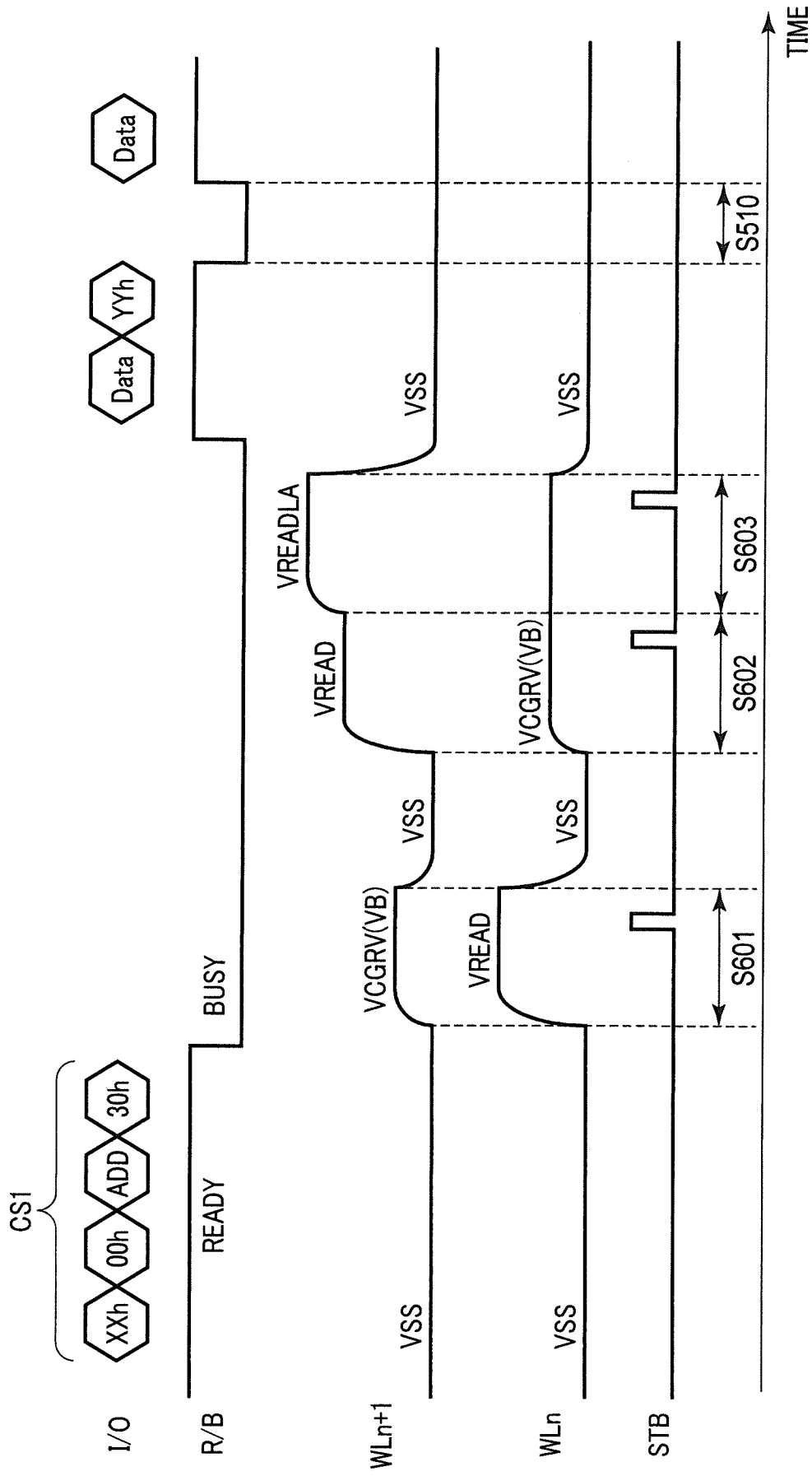


FIG. 78

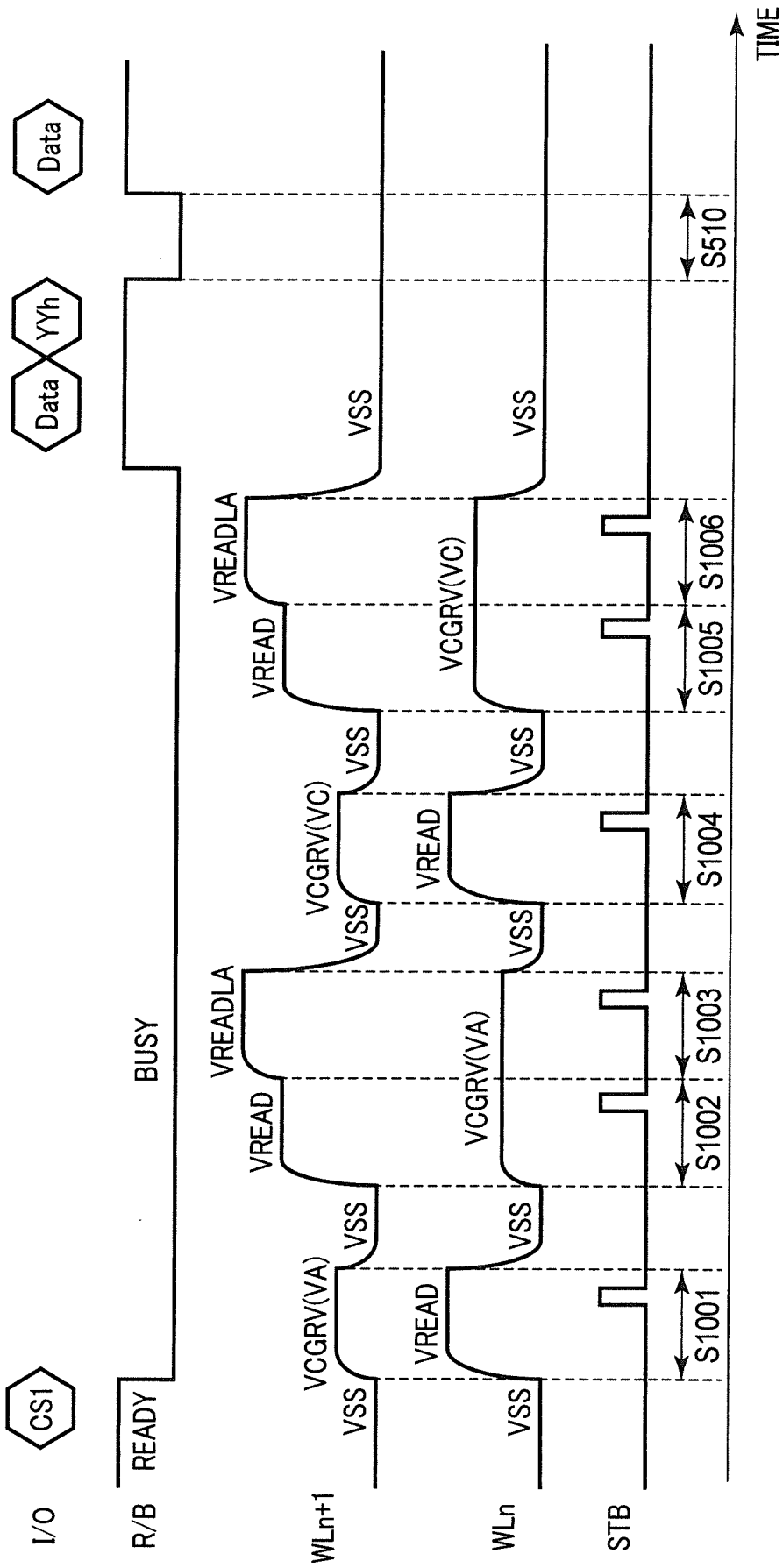


FIG. 79

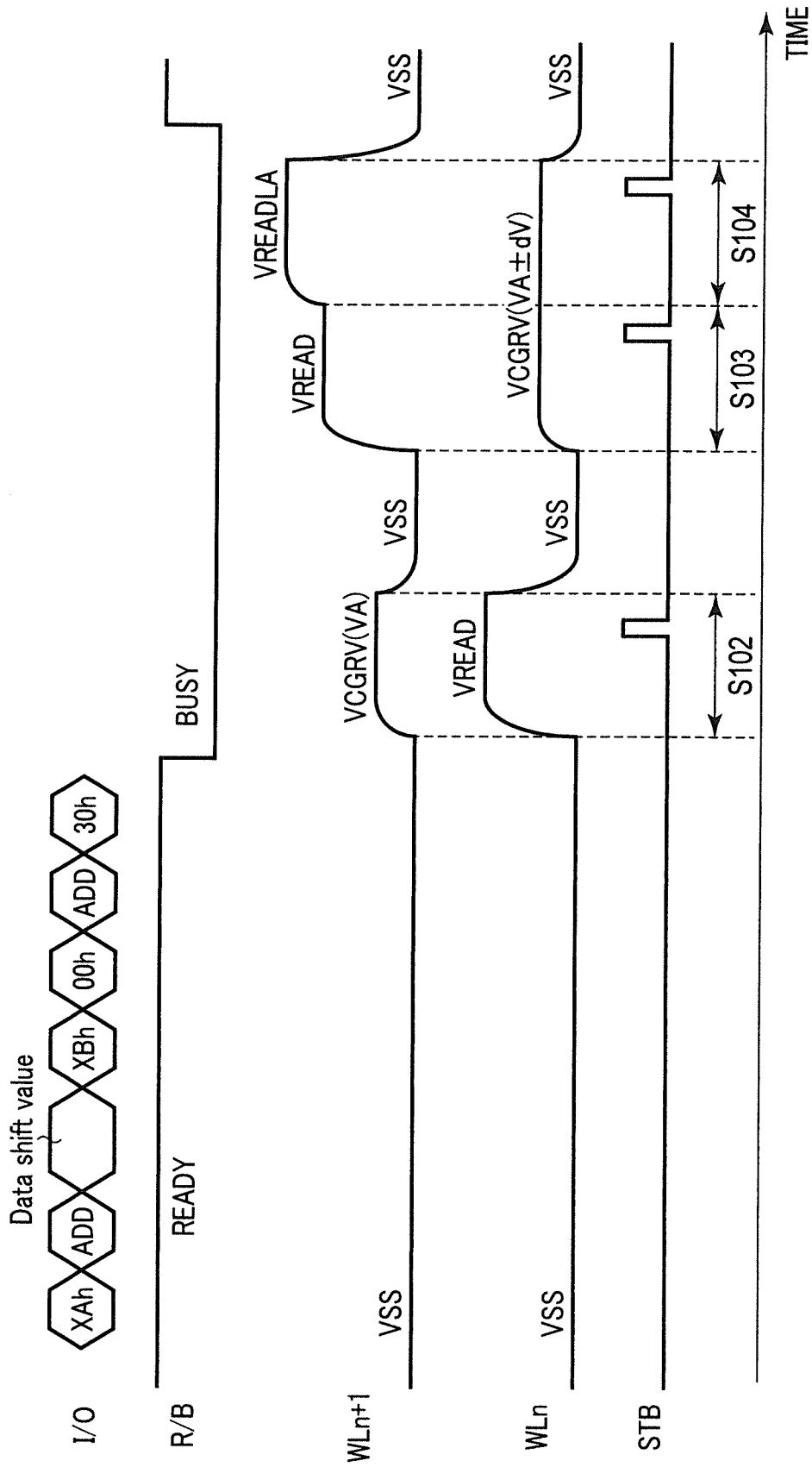


FIG. 80

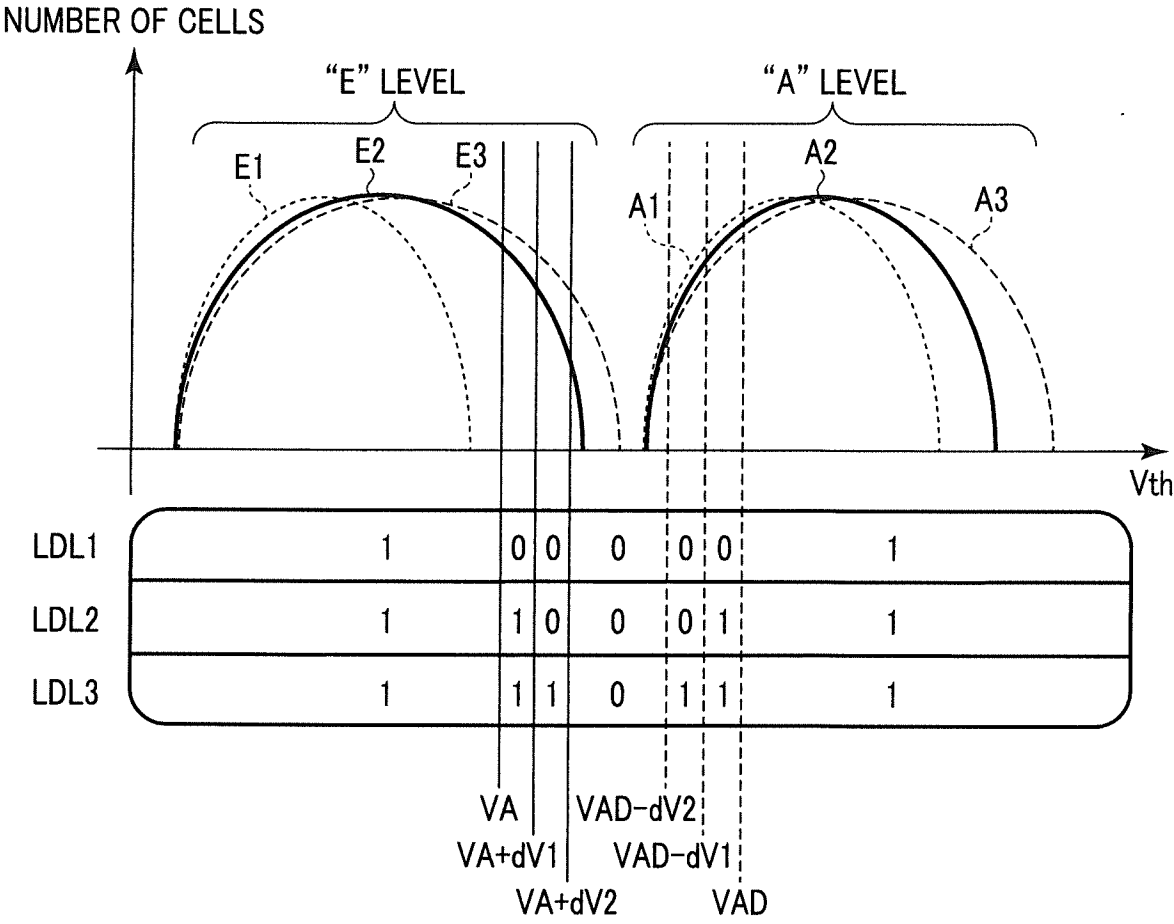


FIG. 81