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(71) 가 가  
가 가 가 가 4 1 - 1

(72) 가 가 가 가 4 - 1 - 1 가 가

(74)  
:

(54)

5

1 SRAM

2a 2c (late - write)

3a 2b

4a 4b

5 4a 4b

6a 6c

7a 7b 6a 6c

8 6a 6c

9

10a 10b 1

11a 11b 10a 10b

12a 12c 2

13a 13b 12

14

21, 21A :

22 :

23, 23A, 23B :

24, 24B :

25 :

26 :

27 :

28 :

29 :

30 :

31 :

DRAM ( ) SRAM

가 , SRAM , SRAM 가  
 , DRAM SRAM 가 , DRAM SRAM DRAM  
 , DRAM [ (/CE), (/WE) ] 가 , SRAM [ (/CE), (/WE) ] 가 .

1 SRAM (/CE)가 ,  
 (/WE) (add) , /WE (DQ)  
 DRAM , , (/WE) (/CE)  
 , 가 , 가 .

2a 2c (late - write) , 2a  
 , 2b DRAM , 2c DRAM 2b  
 (11, 12, 13), (14) (ADD) (10),  
 (15) (10) (10a) (10b) 2c  
 (DQ) , (16), (17, 18)  
 (19) (16) (16a) .

(/WE) , (w  
 rpz) (wrpz) (10, 16)  
 (A0) (D0)가 (12, 18) (14) (iaz) (w  
 dbz) , (walz)가 , (A1)가 (11) (  
 10) (/WE) (wdlz)가 , (  
 D1) (16) , (A0) (D0)  
 , (A1) (D1) (10) (16)  
 (10) (waz) A0 A1 , (16) (wdz)  
 D0 D1 가 , (A1) (D1) ,  
 (A2) (D2) (10) (16) .

(rdpz) (ADD) iaz . ,  
 (10)

가

SRAM , /CE=L( ), /WE=H, /OE( )=H 가 .  
 ( ) (Output - Disable State) . 3  
 (/WE)가 가 ( 3b), (/OE)가 가  
 ( 3a). , 가 1  
 가 가 (/WE)가  
 가 (/OE)가 가 .  
 (/CE)가 , (/OE)가 L (/OE)가 L

1 (Static - Type Semiconductor Memory Device)  
 (Dynamic - Type Semiconductor Memory Device)

2 1  
 3 1  
 4 1  
 5

가

6 , 2 , 1 2 1 , 5

7 , 1 , 1 1 , 5  
2 , 1 2 가 ,

8 , 1 5

3 , SRAM (/WE) DRAM (/OE)가 L

L , 4b , 4 , 4a , (/CE)가 (odpz) (odpz)

5 . NOR (20) (13) NOR (20) (rdpz)  
(13) (odpz) NOR (ADD) (13) (14)

4a , (/CE)가 L 가 , ( (odpz) NOR (20) (ADD) (13) (14) (ADD)  
가 (iaz)가 , (odpz) (OE)가 L , (rdpz) H가

4b , 4a 가 (ADD) (4) , (12)가 , (10)  
(/WE)가 L , (wrpz) H가 , 5 (odpz) ( 4  
b ) (10) (iaz)가

3a 4a ,  
 , 가 (odpz)  
 , , (/WE)가 L ( 4b )

6, 7, 8 9

6a DRAM (23), (24), (25), (26), (2)  
 2), (27), (28), (29), (30) (31)  
 , 9 6b (23)  
 (32) (33) 6c (24)  
 (34)

7a 7b 7a , 7b

8 9 9  
 (61), (62, 63), (64), (66),  
 (65, 67), (68, 69) (6)  
 1) (61a) (61b) , (BL, /BL) ( 9 BL)  
 (BL, /BL) (68, 69) (DB, /DB)  
 . vpr

6 9 /CE, /W  
 E /OE 7a (/OE)가 L , (2)  
 6) (21) (actpz) (22) , (rdpz) (2)  
 (rdpz) (26) (ADD),  
 (27) (28) (28) 가  
 ( ) (romz) (30)

(actpz) (22) (rasz) (23)  
 (23) (32: 6b)  
 (rasz) (33)  
 (blspz) (24) (29) (33)  
 (blspz) (29) (29)  
 (brsx) L , 9 (62 64) OFF 가  
 (24) (34: 6c) (blspz)

(wlspsz) (25) (30) .

(29) (30) (wlspsz) (rblkz) (30) (31) (romz)

(61) 가 (BL, /BL) (WL) (H) . (WL)

(25) (wlspsz)

(66) (31) (mlez) (31) (lex, lez) (67, 65) (mlez)

(CL: 6 (BL, /BL) (68, 69)가 ON , (27)

가 (DB, /DB) (BL, /BL)

(BL, /BL) 가 (restore) ,

(21) (prepz: 6 (22)

(rasz) (24) (rasz)

(wlrpz) (30) (30)

(WL) (wlrpz) (rasz)

(mlez) (25) (wlrpz)

(brsx) H (blrpz) (mlez) (29) (23) (29) (

(BL, /BL) (blrpz) (mlez)

(26) (/WE)가 L , 7b 가

(wlpz) (21)

가

10a 1 10a 6 (23A)

10a 1 (21A) (rdpz) (21A) (wrpz) (23A)가 6a (26) (23A)  
 (odpz) (26)  
 (21A) (odpz) (actpz) (22)  
 (26) (rdpz), (wrpz) 가 가  
 (wrpz) (ADD) (23A) (rasz) (rdpz)  
 2 가 (BL, /BL) (blspz)

10b (35, 37), (36), NAND (23A) (32) (33) 가  
 (43) (38), RS (39, 40), NAND (41), (42)

10a 10b 11  
 11a (/OE)가 L  
 ), 11b (/WE)가 L ( )

11a 11b , /OE=H, /WE=H /CE가 L 가 ,  
 (21A) (odpz) (26) (AD)  
 D) (27) (28) (27) (AD)  
 D) (29) (21A) (/CE)가 L  
 (actpz) (22) (22) (actpz)  
 (rasz)

(rasz) 10b (32) (33) (39)  
 (n1) H (32) /OE /WE H (38)  
 (rasz) (n1) H가

( ) 7b (blspz) 7a 가 (/OE)가 L  
 10b (wrpz) (35), (36) NAND (37) NAND (38) (40) (40) (36)  
 (40) 가 (4b)  
 (41) L (40) (n2) H가 , n1=n2=H가 NAND  
 H가 (43) (blspz) H가 (43) (39, 40)  
 (blspz) 가  
 8



(odpz) /WE /OE가 L .

12a 2 12a 6 10 (23B)  
 12b 12a (24B)  
 12c 12a

2 (23B) 12b  
 (24B) 12c

12b (23B) (32), (33), (44), NOR (45)  
 (46) (23B) (wrpz) (blrpz)  
 z) (47, 48)

13 (24B) (39, 40), NAND (41), (42)  
 (43) 가 (49), NOR (50, 52) (51, 53)

12a 12c , 13a (/OE)가  
 13 ( ), 13b (/WE)가 L ( )

12a 12b (/CE)가 L (rasz)가  
 11a 11b (rasz) 12b (32),  
 (33), NOR (45) (46) (blspz)  
 (BL, /BL) 가 (brsx)가 L , 9 (62 64)가 OFF  
 (rdpz) (rasz) 11a  
 (blspz) 12b (49) (39) , n1=H가 (49)

12a (/OE) (rdpz) 12b  
 가 (wlspsz) (rdpz) NOR (50)  
 (51) (40) , n2=H가 , n1=n2=H가 ( )  
 24B) (wlspsz)

12b (/WE)가 L (21A)  
 (wrpz) (23B) (24B) (23B)  
 z) (44) (wrpz) (blspz) (wrp  
 (rasz) (23B) (47, 48) (blrpz)  
 가  
 (BL, /BL) ( )  
 blspz) (24B) (49) (39) (40)  
 (wrpz) (wlspsz)가

, 12b 23B (23B) , (rasz)가 H  
(blspz)가 (blspz)가 , 가 (r  
asz) (wrpz) (32)

가 , (24B) , (blspz)가 n1 H가  
가 (wrpz) (49)

, 13a 13b 8 가 .

14 (71),  
(72 74), (75), (71 74) (76 79),  
(80), / (81), (82), (83),  
(84), ( : 85) / (86) (26), 10 12  
(82) 10 12 (27), (85) 9  
(26), (28) (27) (28) 10 12  
(86) 9 (DB, /DB)

(71) (76) ,  
(85) (/CE, /WE, /OE) (77, 78, 79) (83)  
(84) (83)

SRAM DRAM

( )

(1)

(2) ( )  
1)

(3) (1) (2)

(4)

(1) (2)

(5)

(1) (2)

- (6) (1) (2) .
- (7) (1) (2) .
- (8) (1) (2) .
- (9) (1) (2)
- (10) (1)
- (11) (2) . (
- (12) (1) (2) .
- (13) , (12)
- (14) ,
- (15) 2 , 1 2 1 , (14) .
- (16) 1 , 1
- 1 1 , 2 , 1  
2 (14) .
- (17) (1)
- (14)



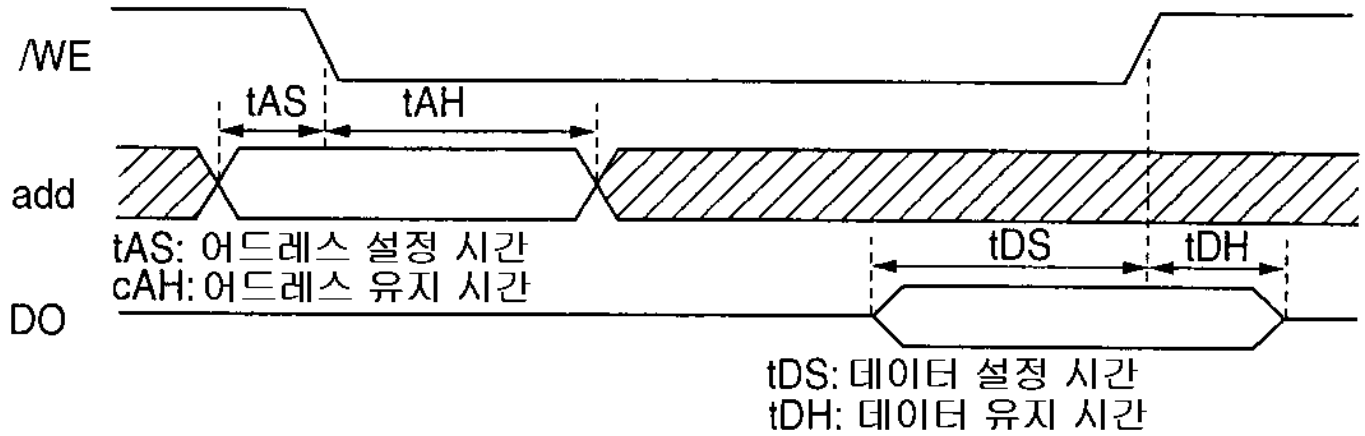
8.

1

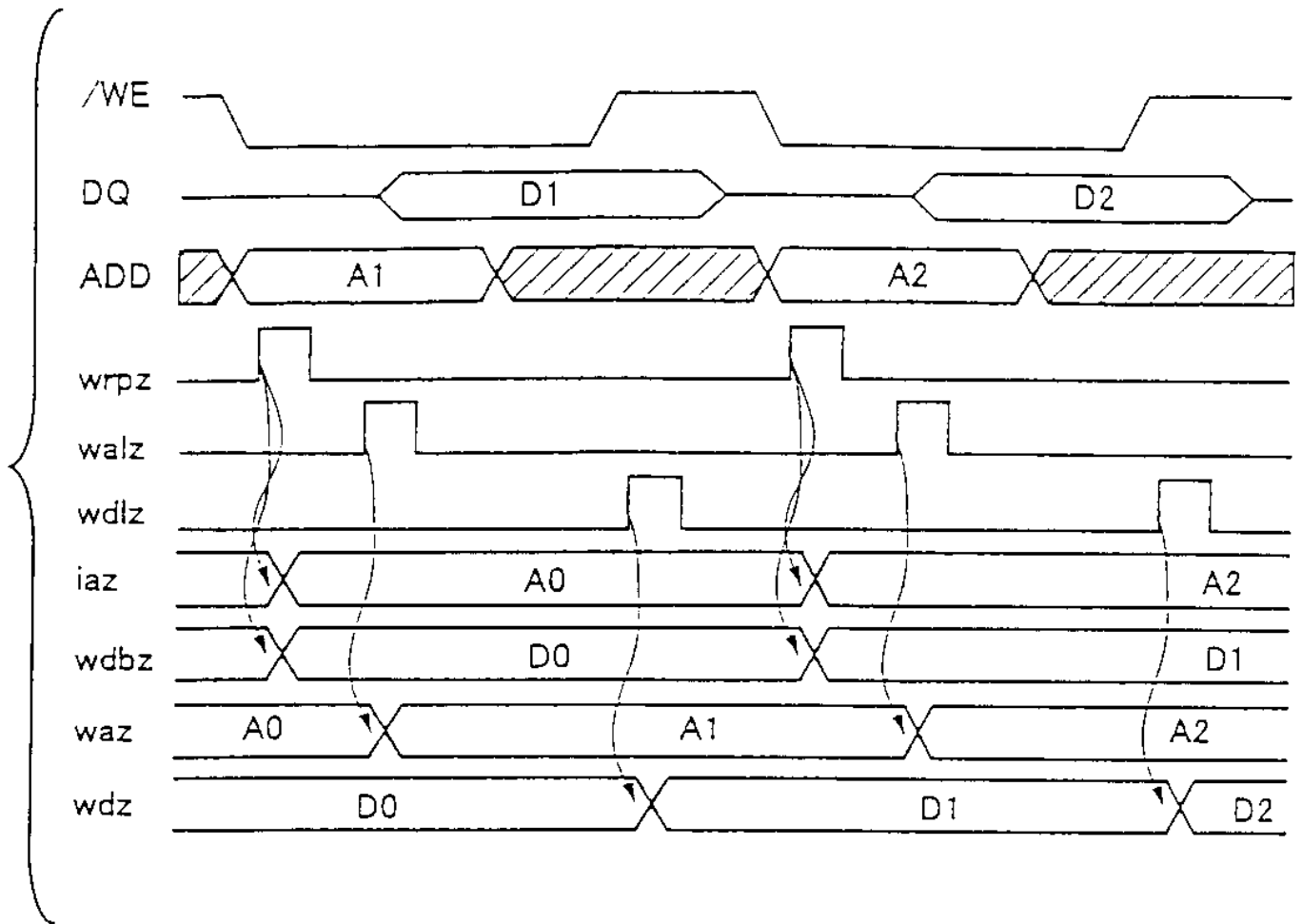
5

1

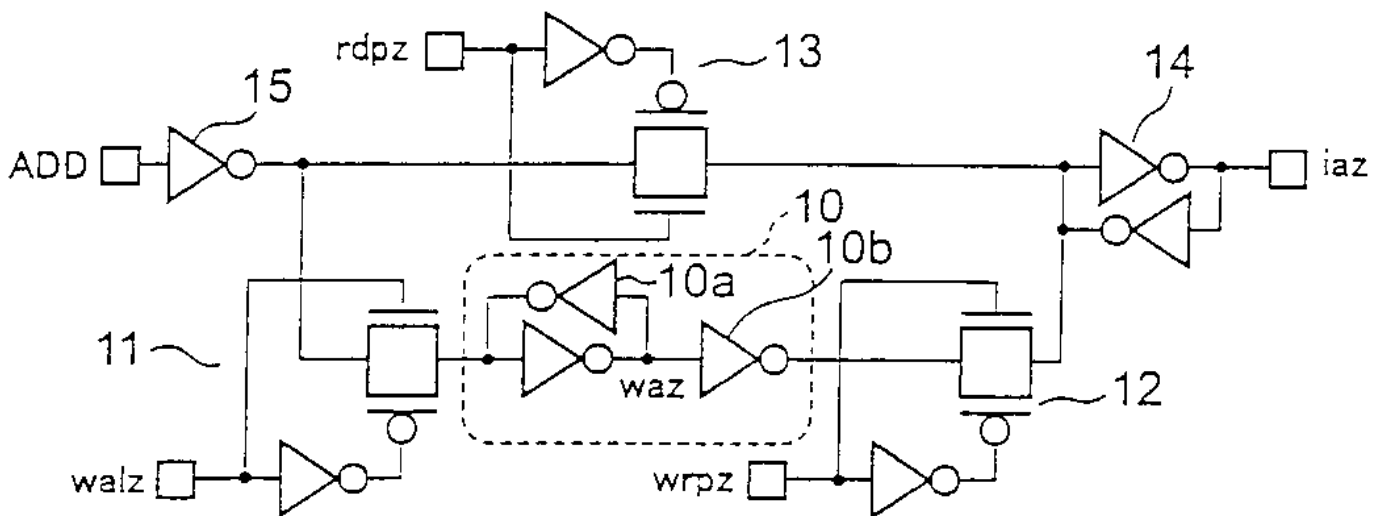
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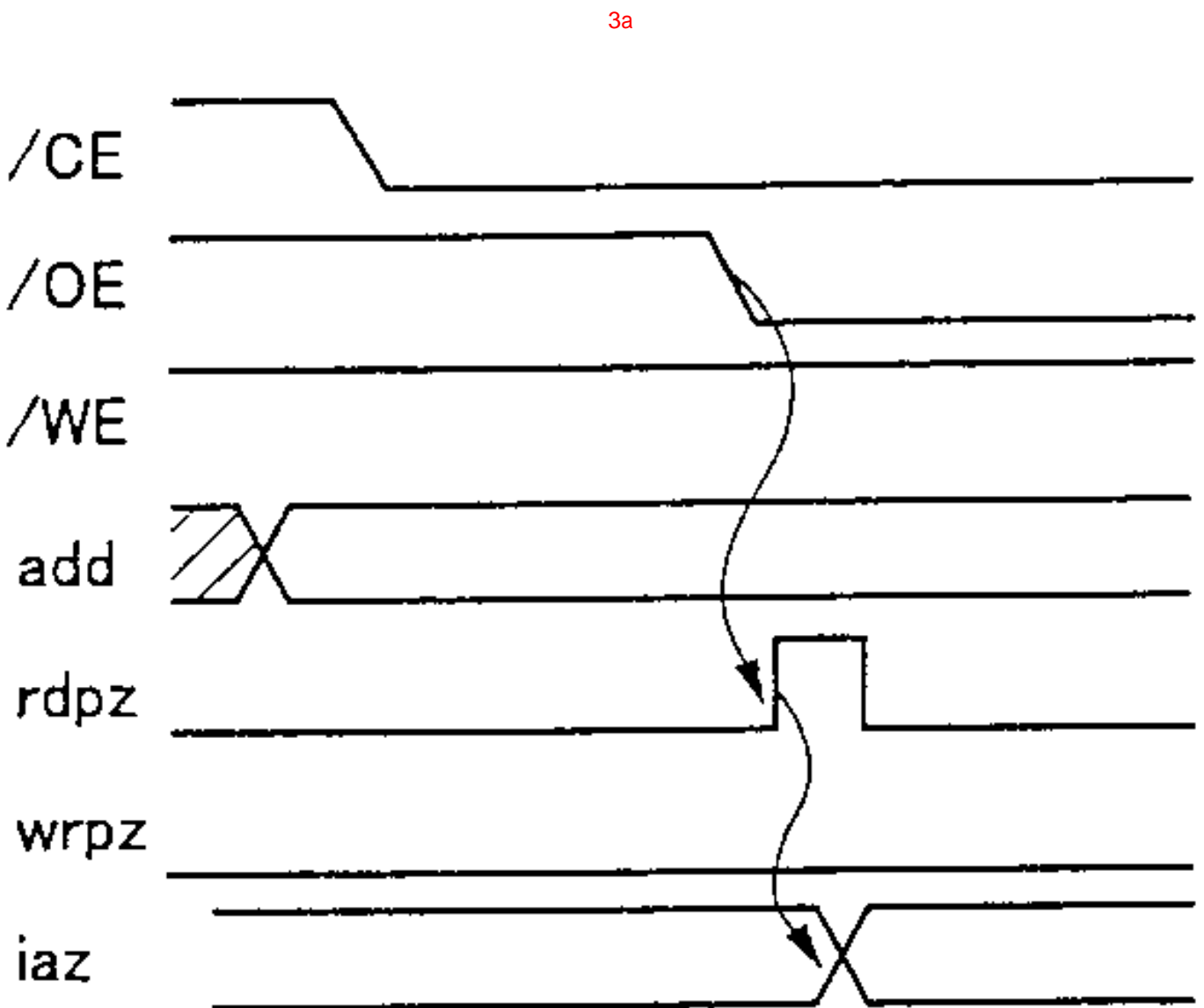
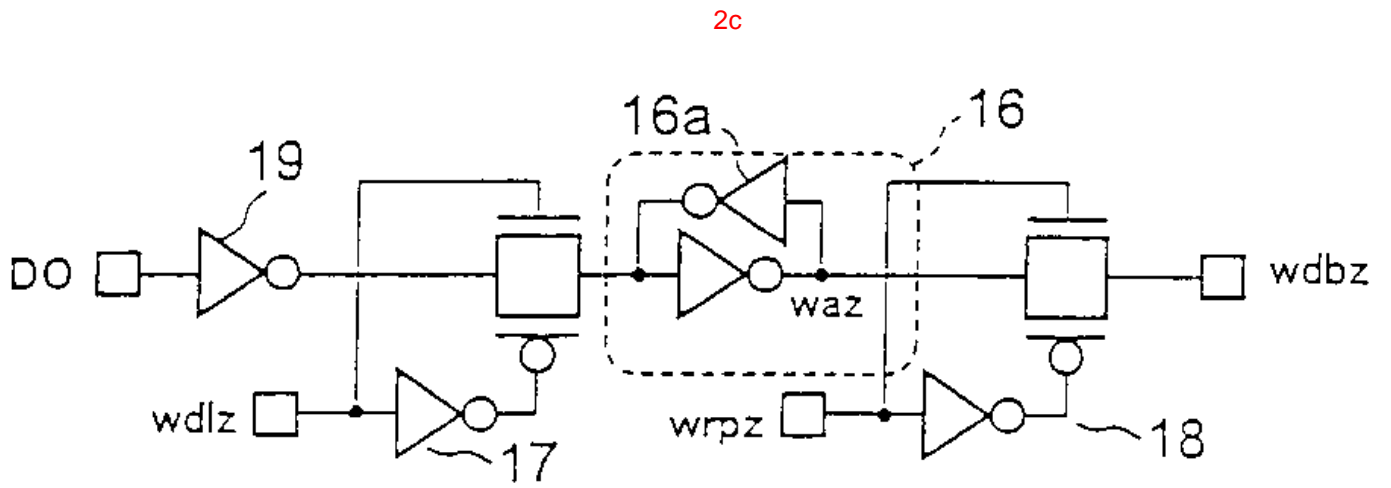


2a

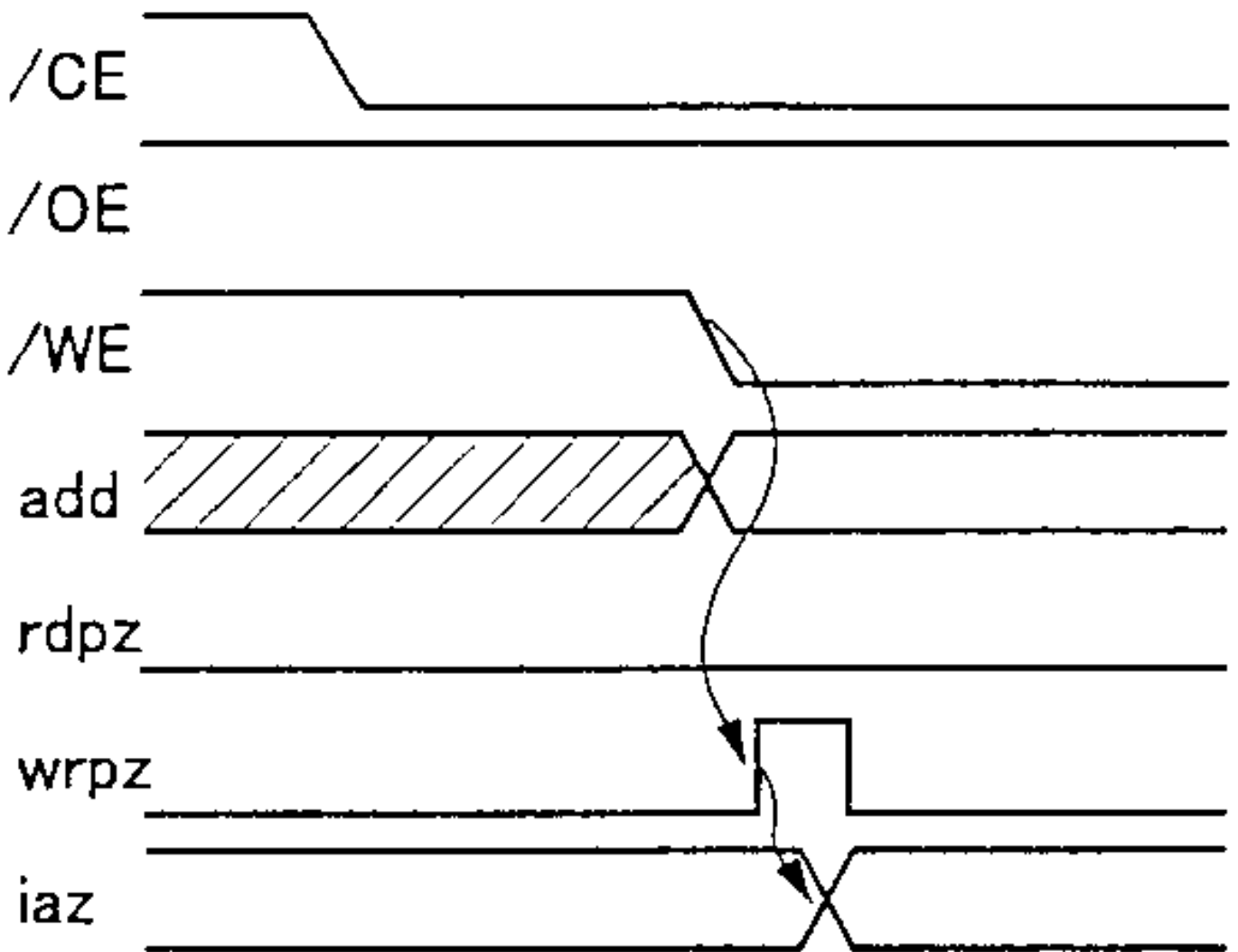


2b



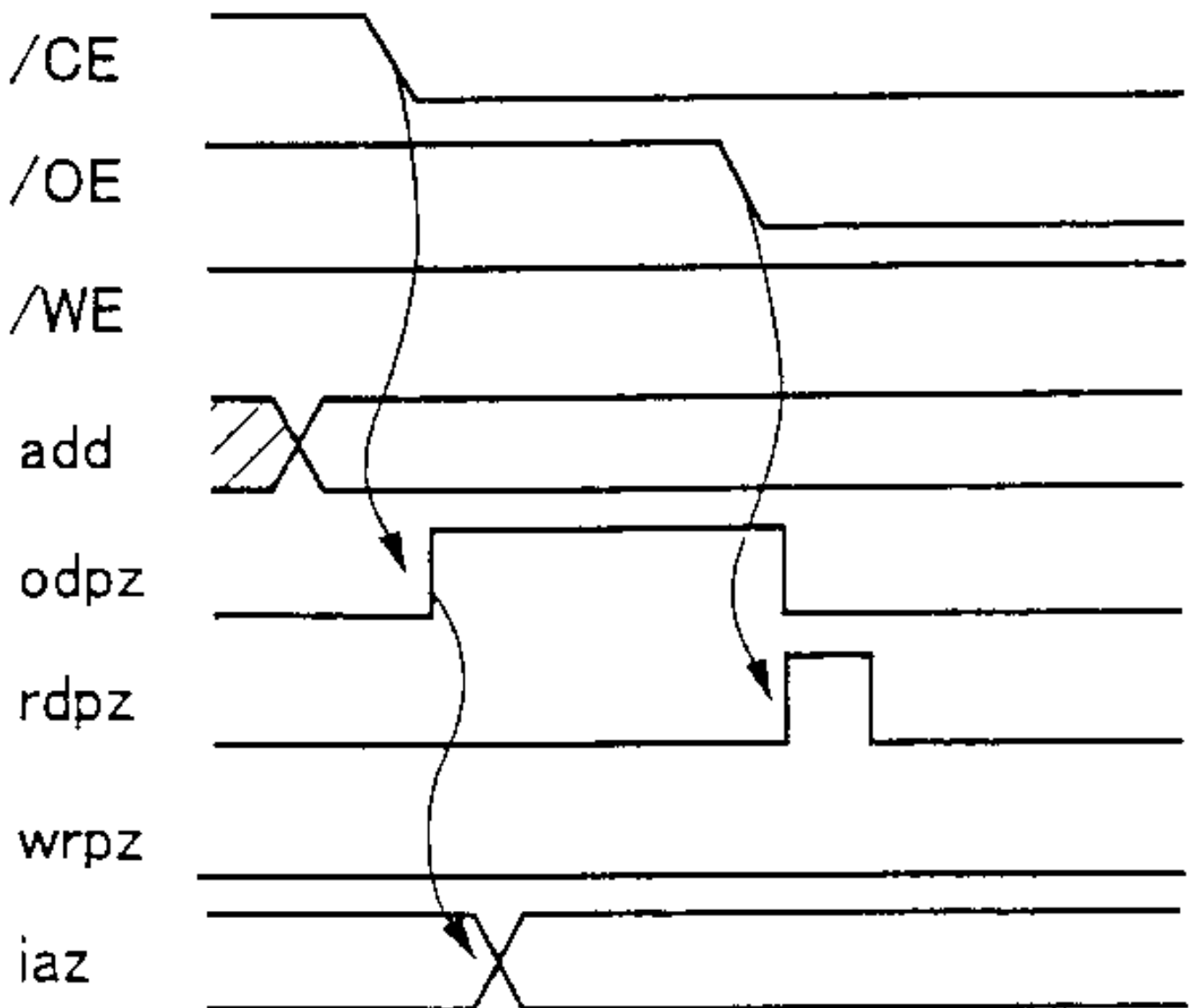


3b

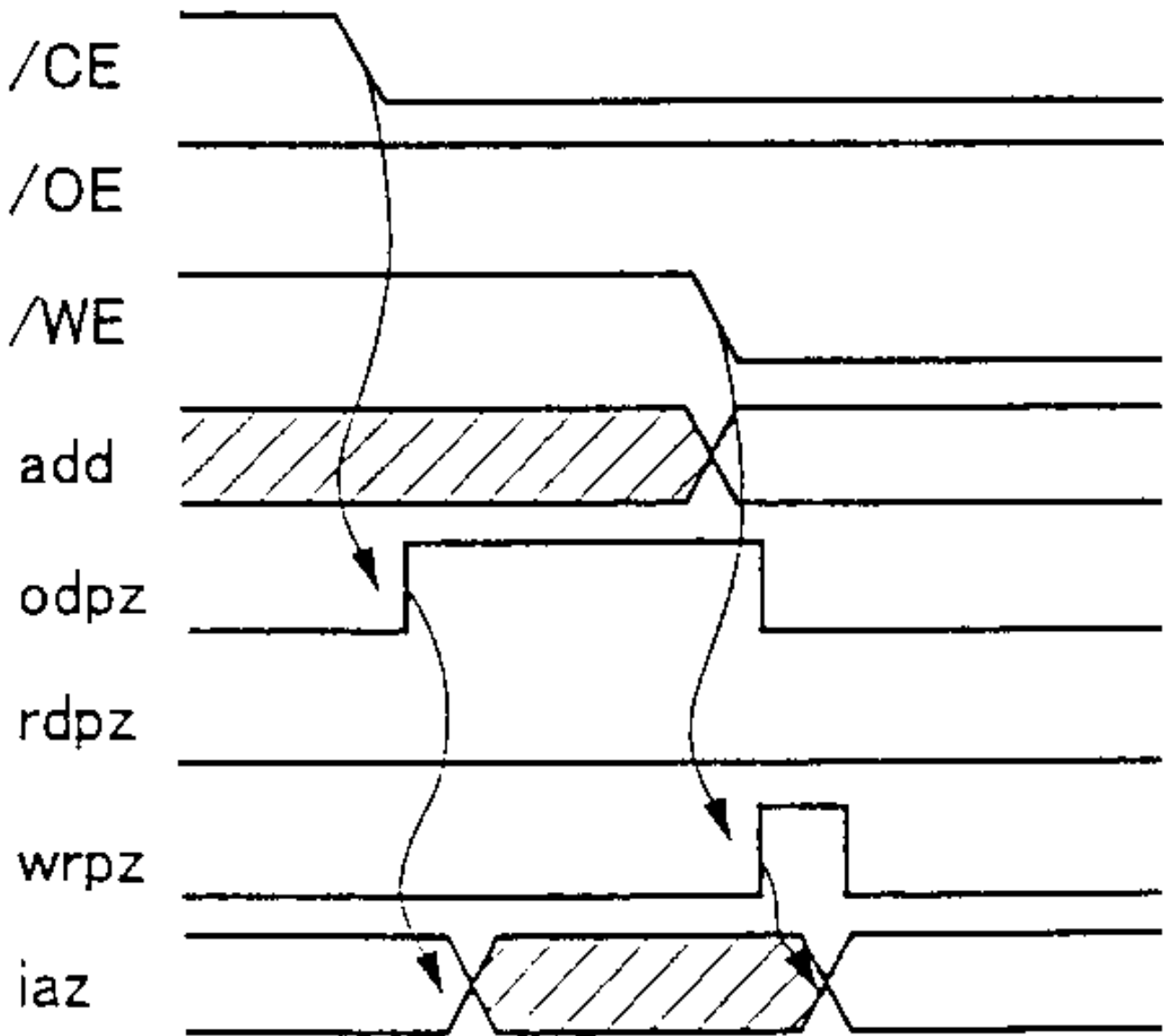




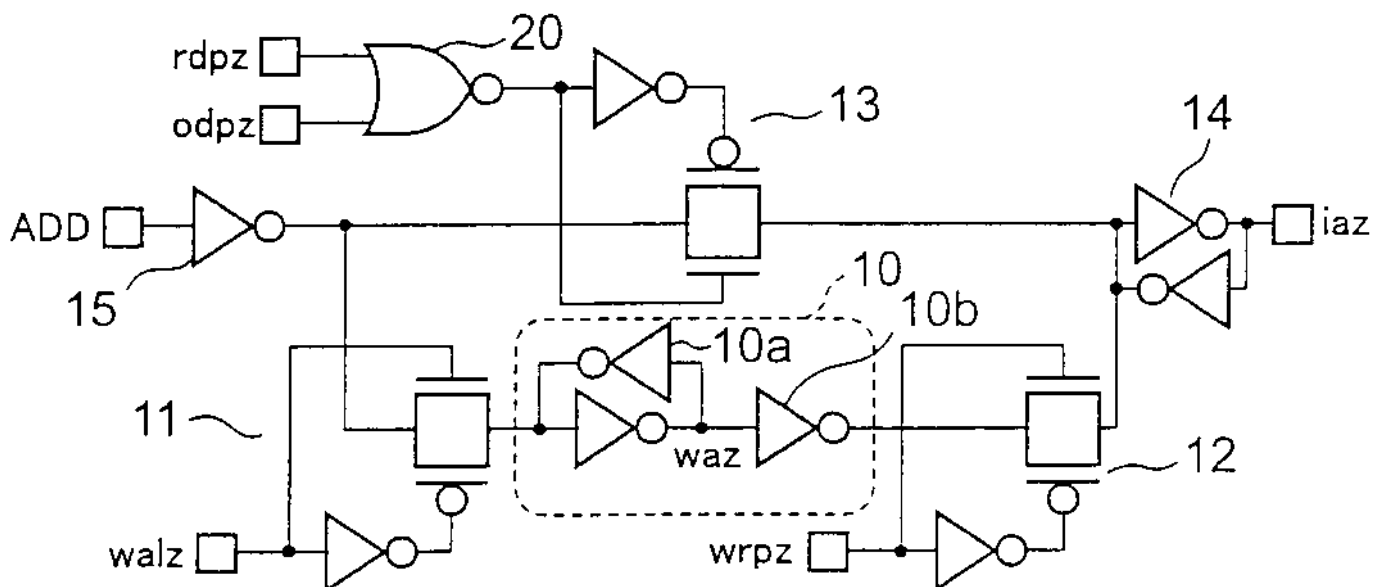
4a



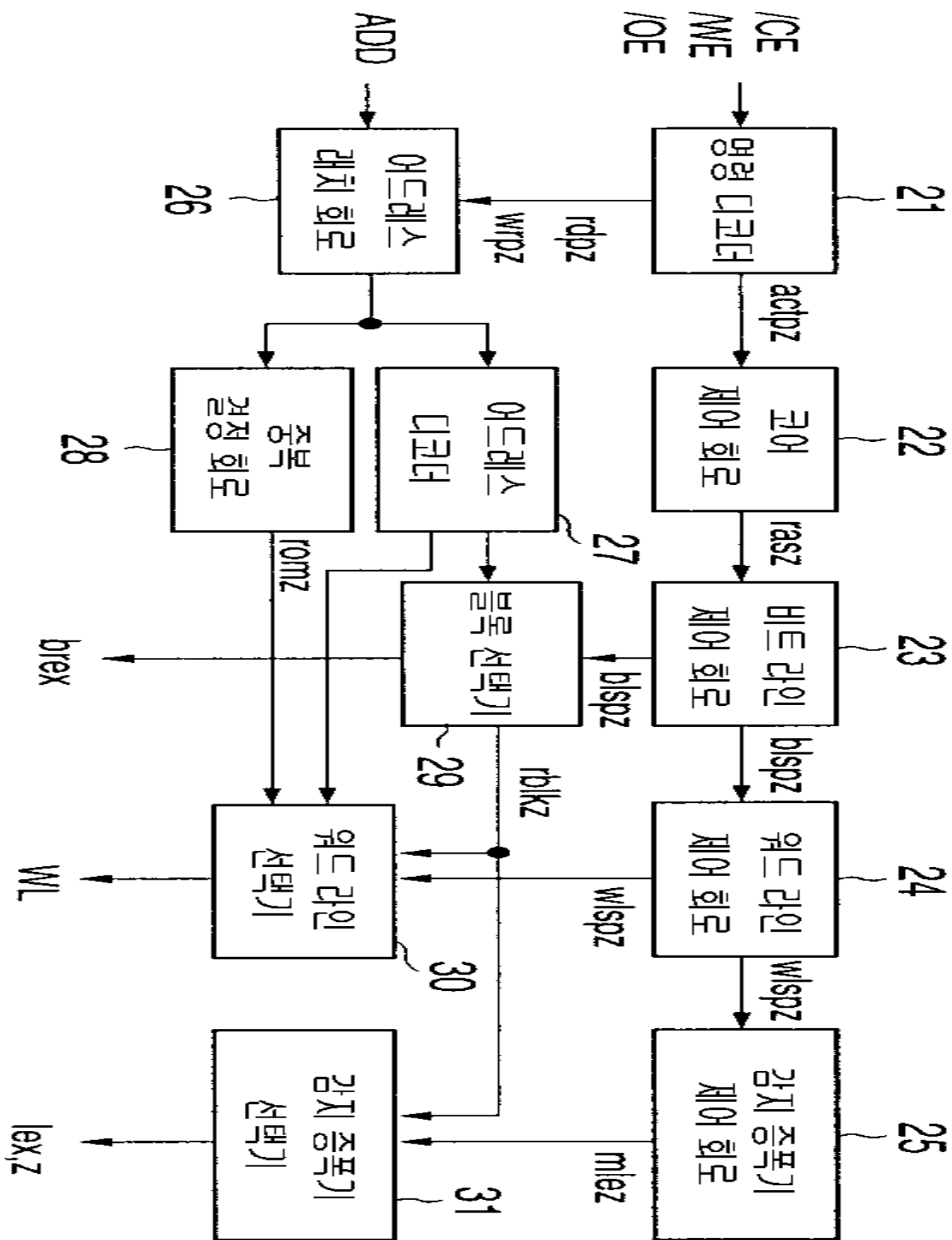
4b



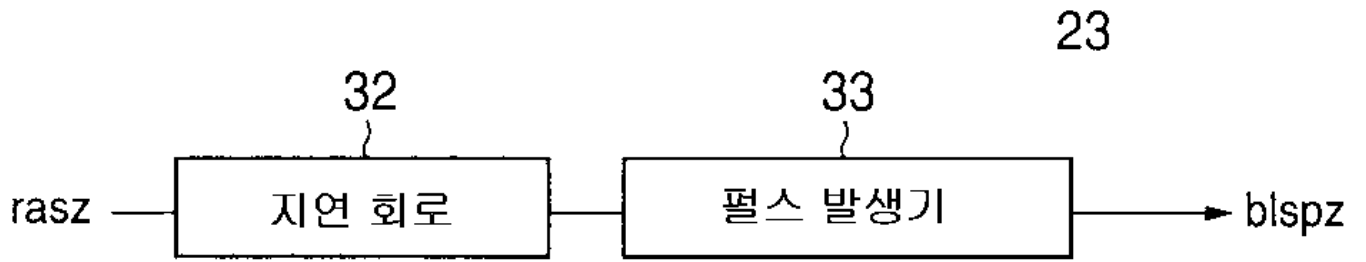
5



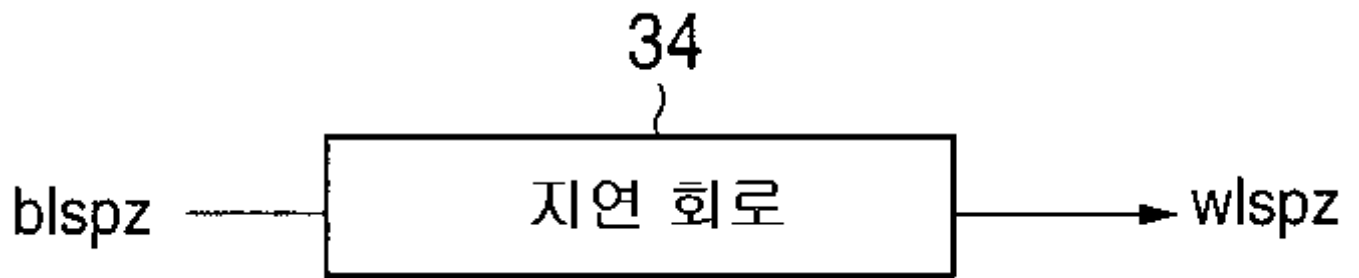
6a



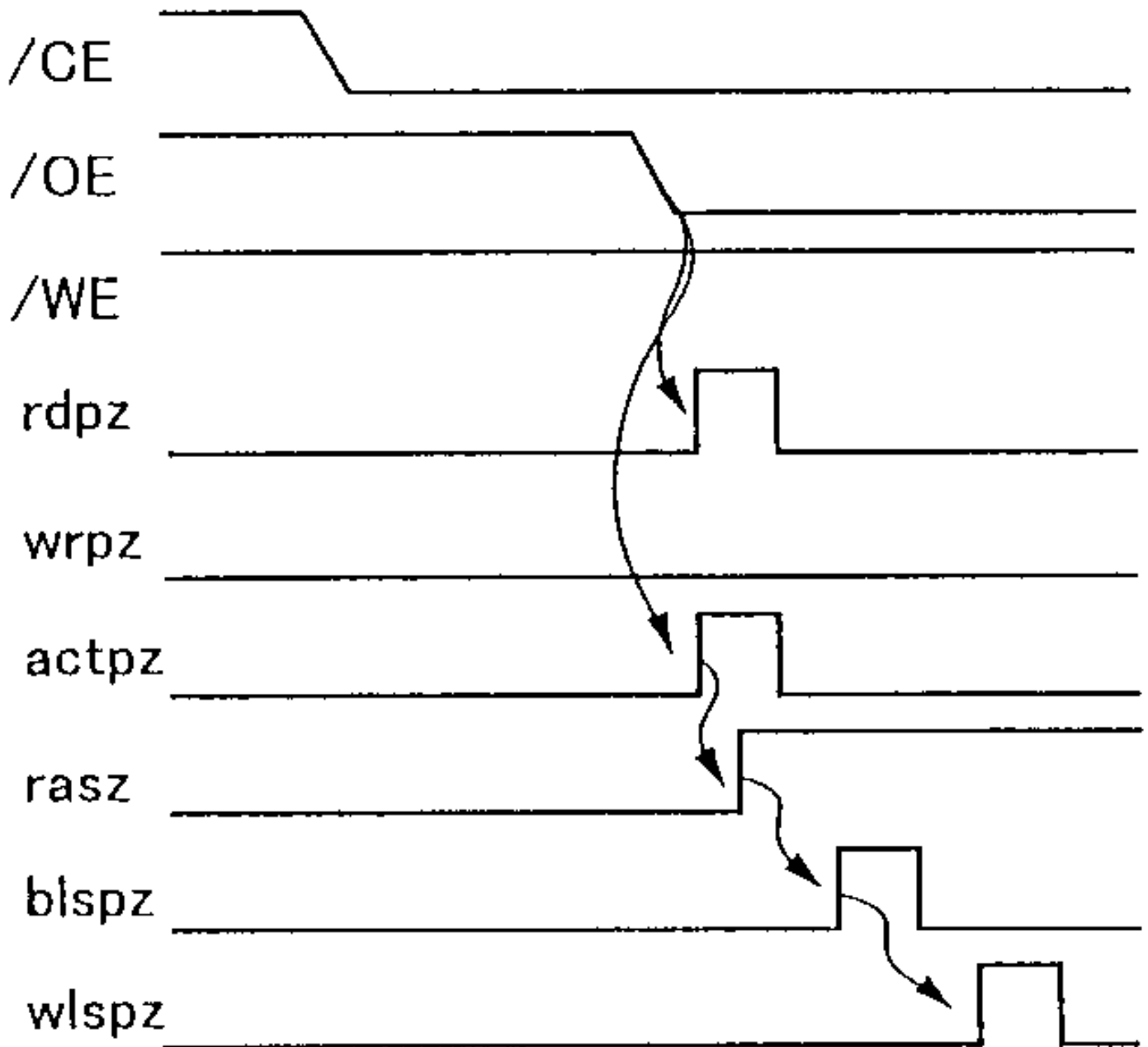
6b



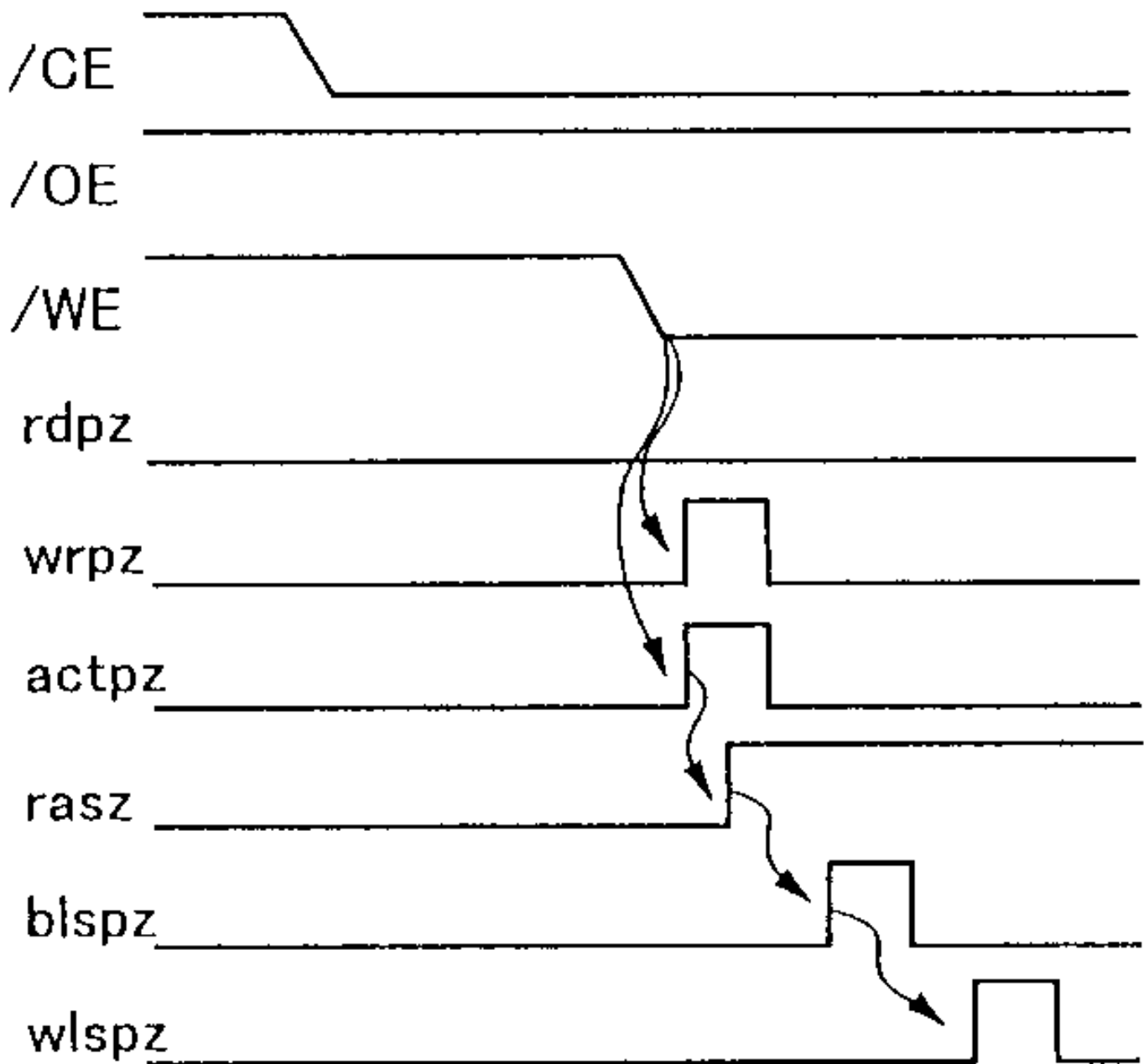
6c



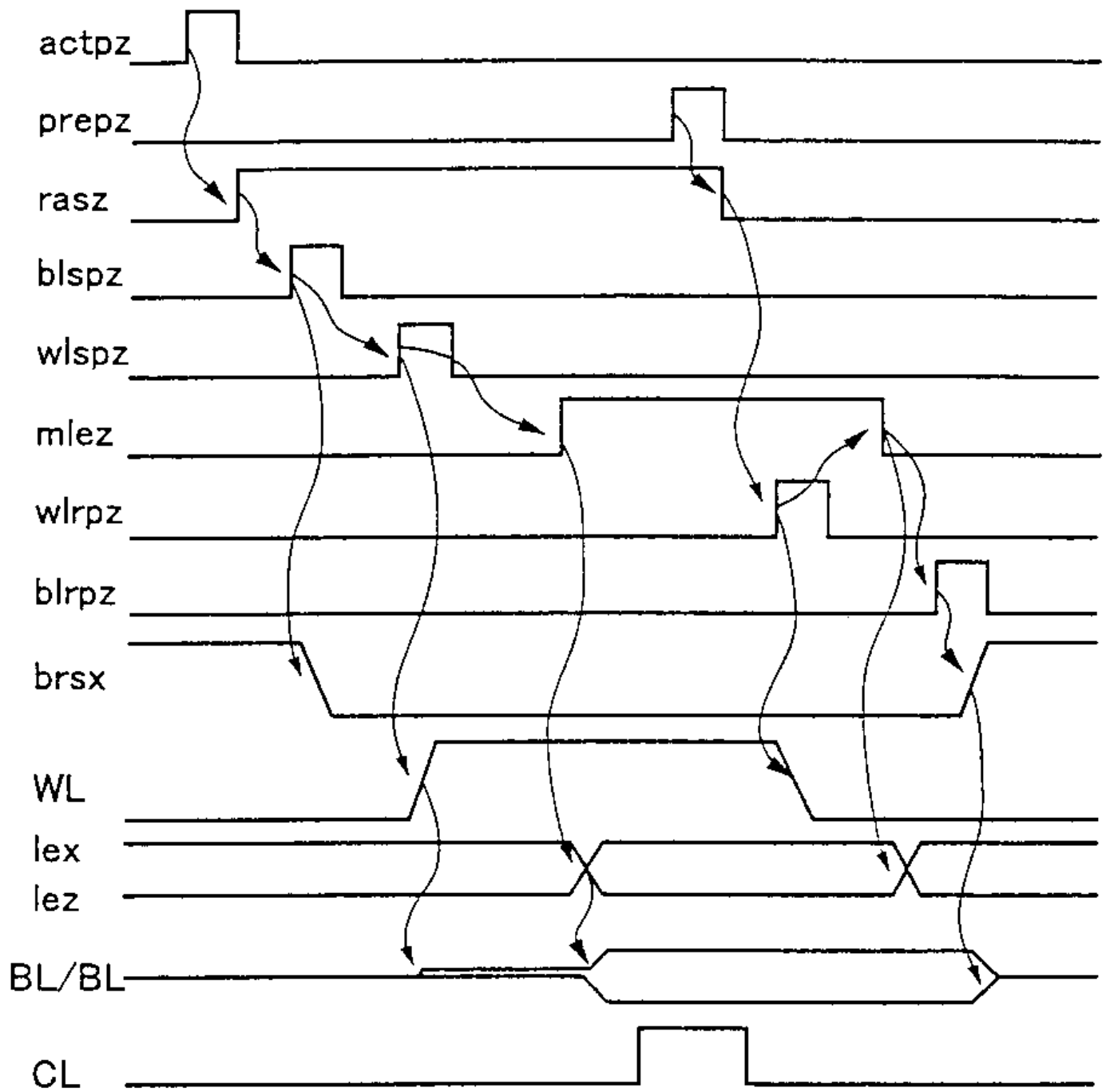
7a

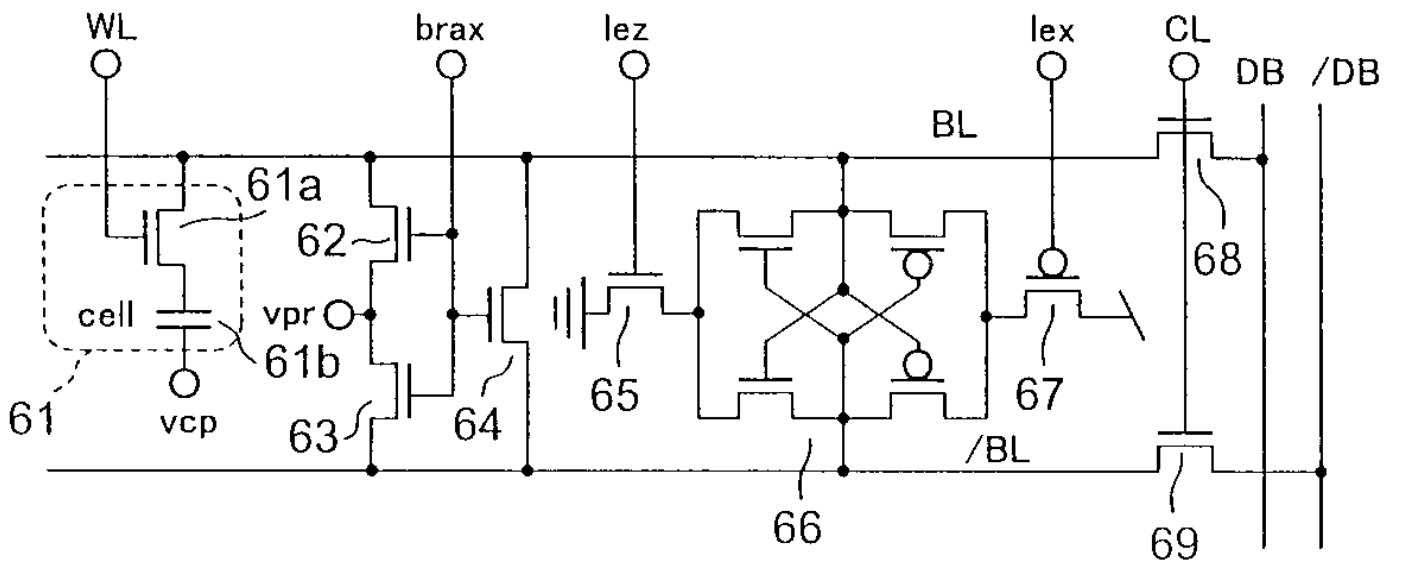


7b



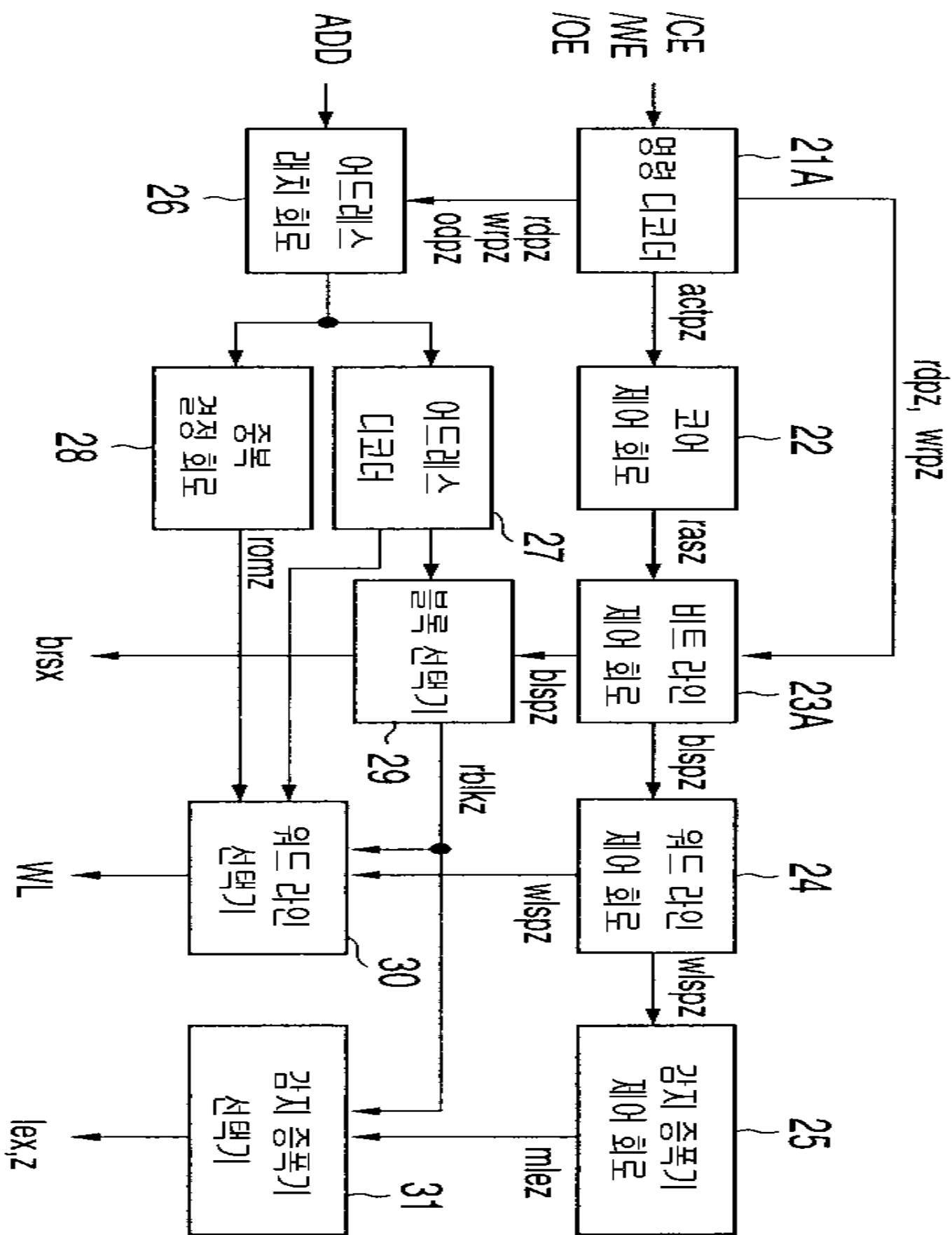
8



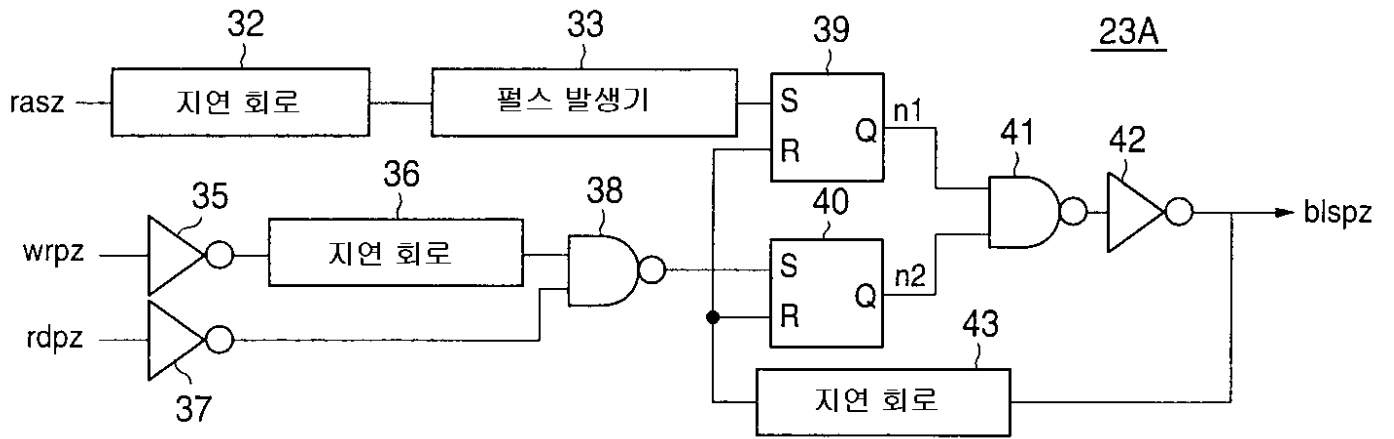




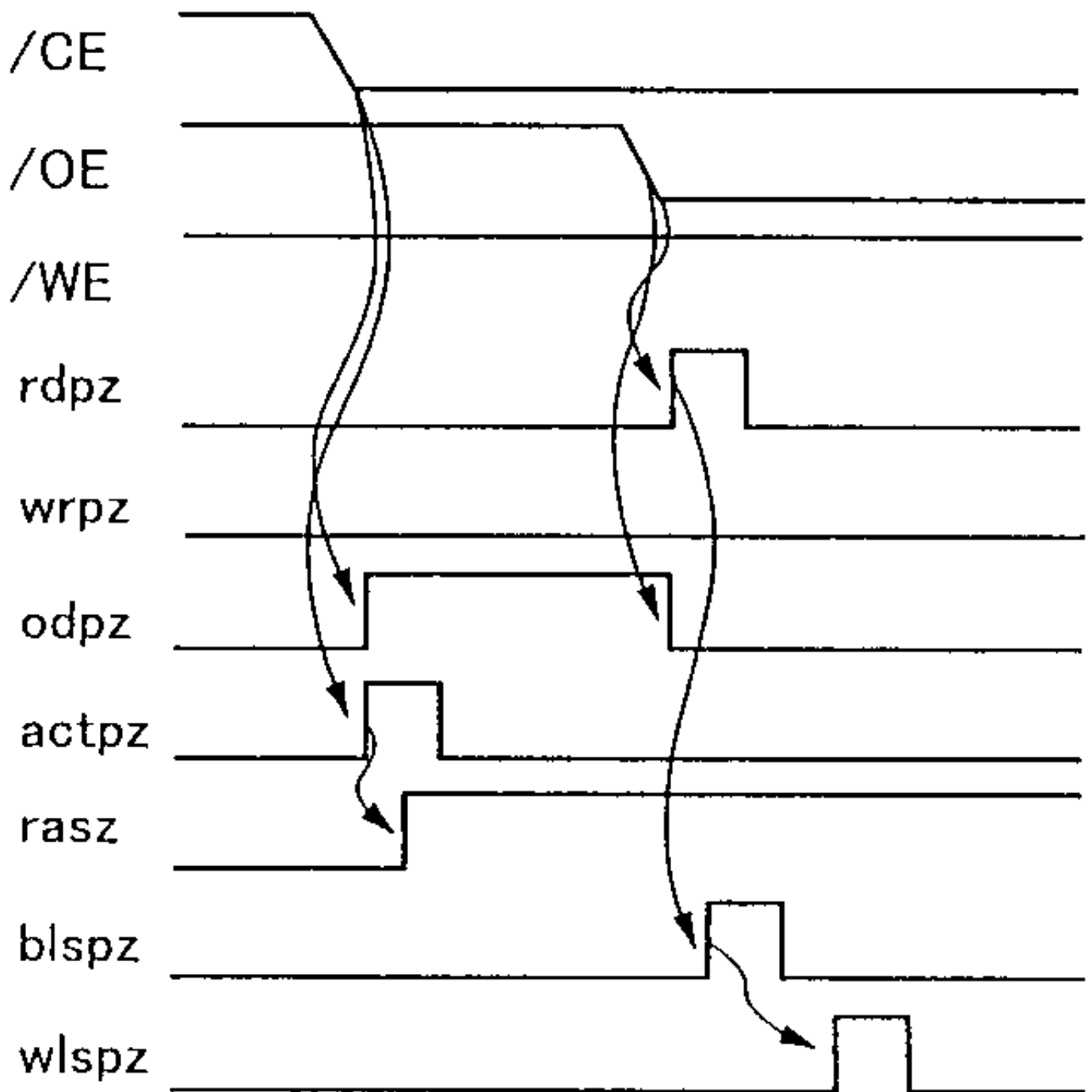
10a



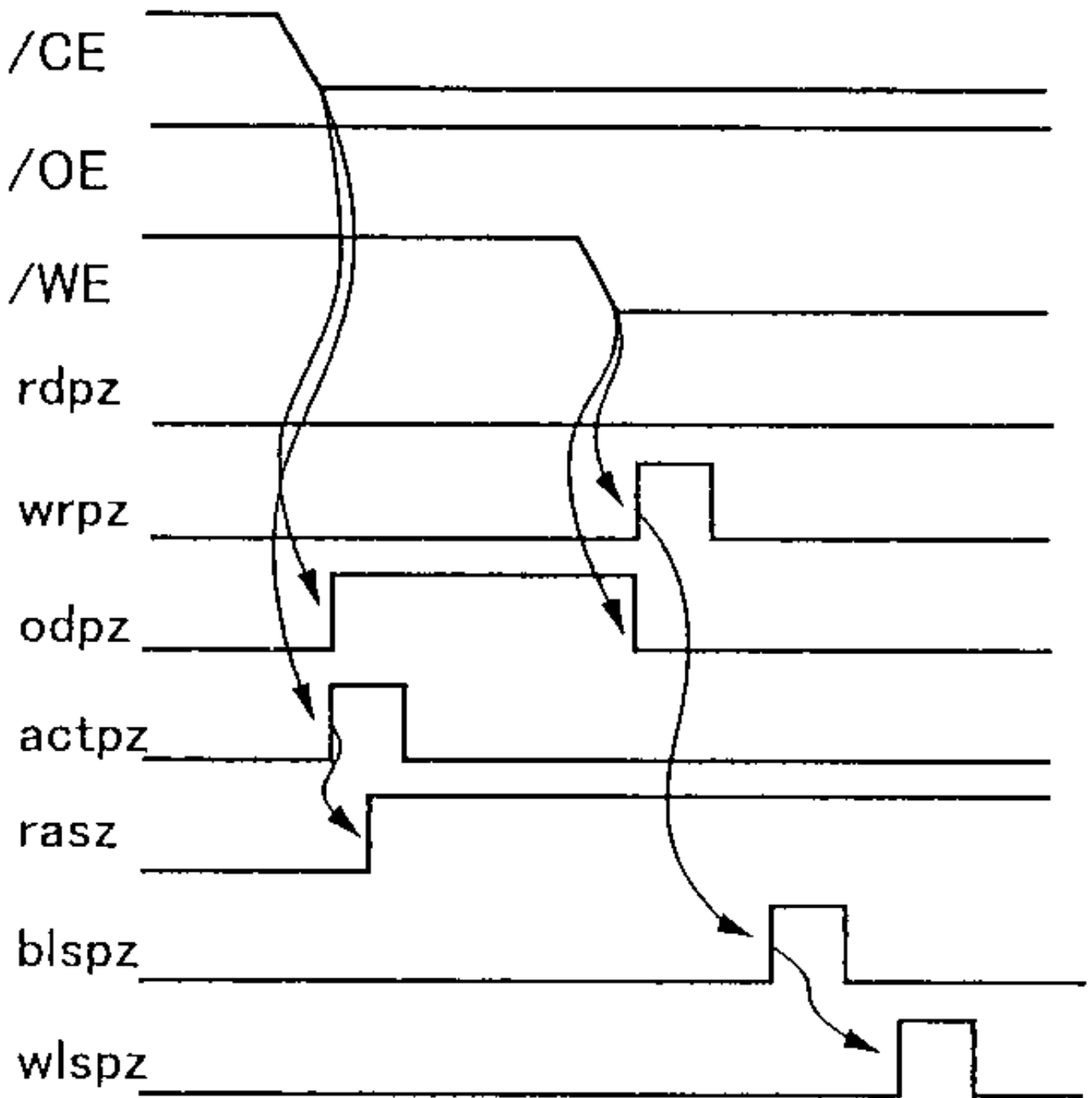
10b



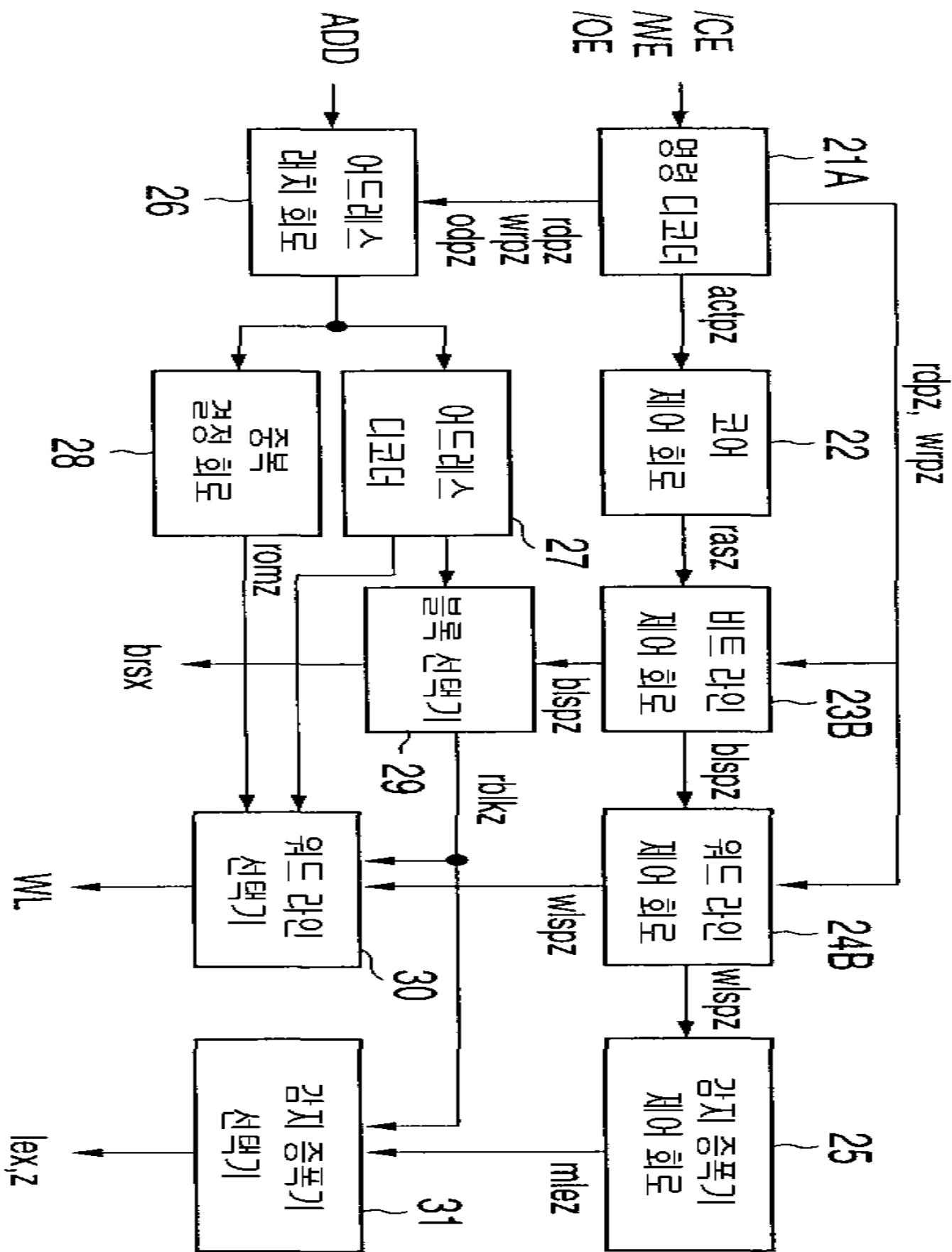
11a



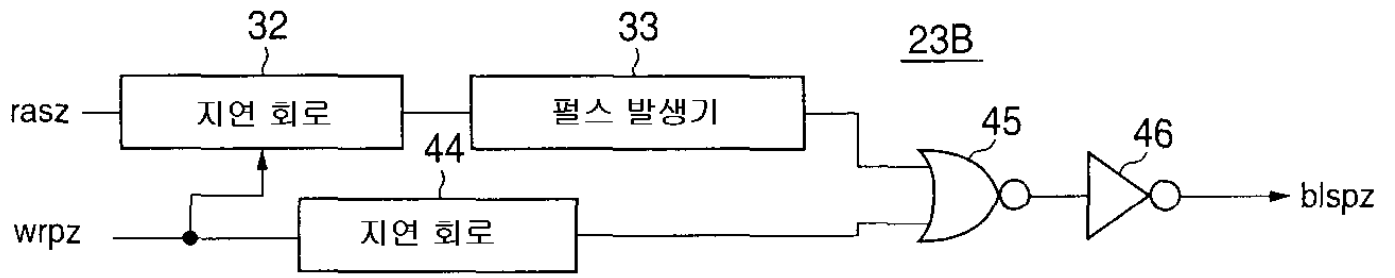
11b



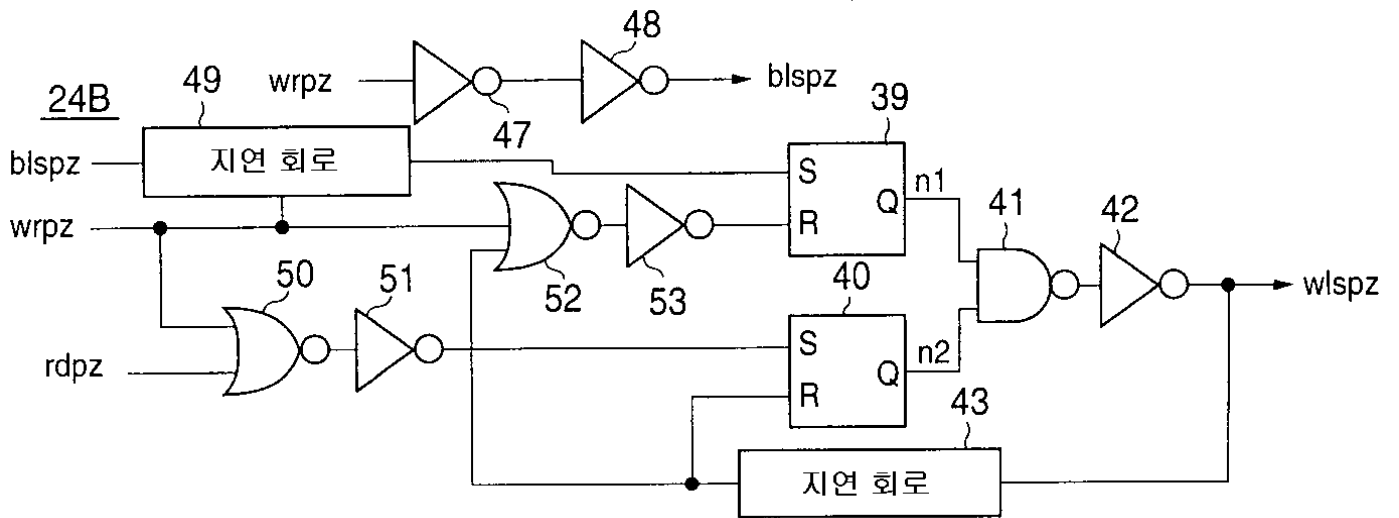
12a



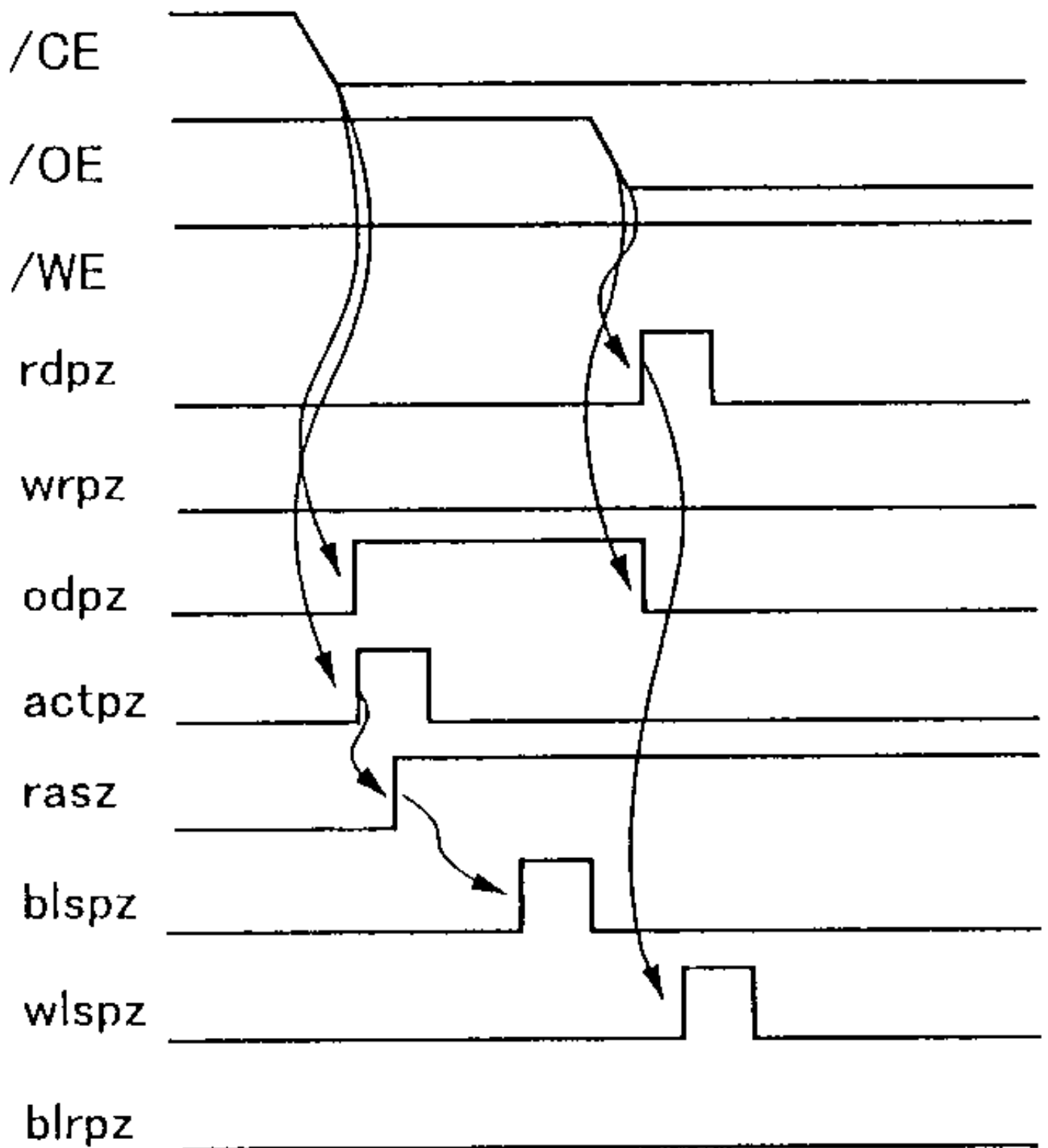
12b



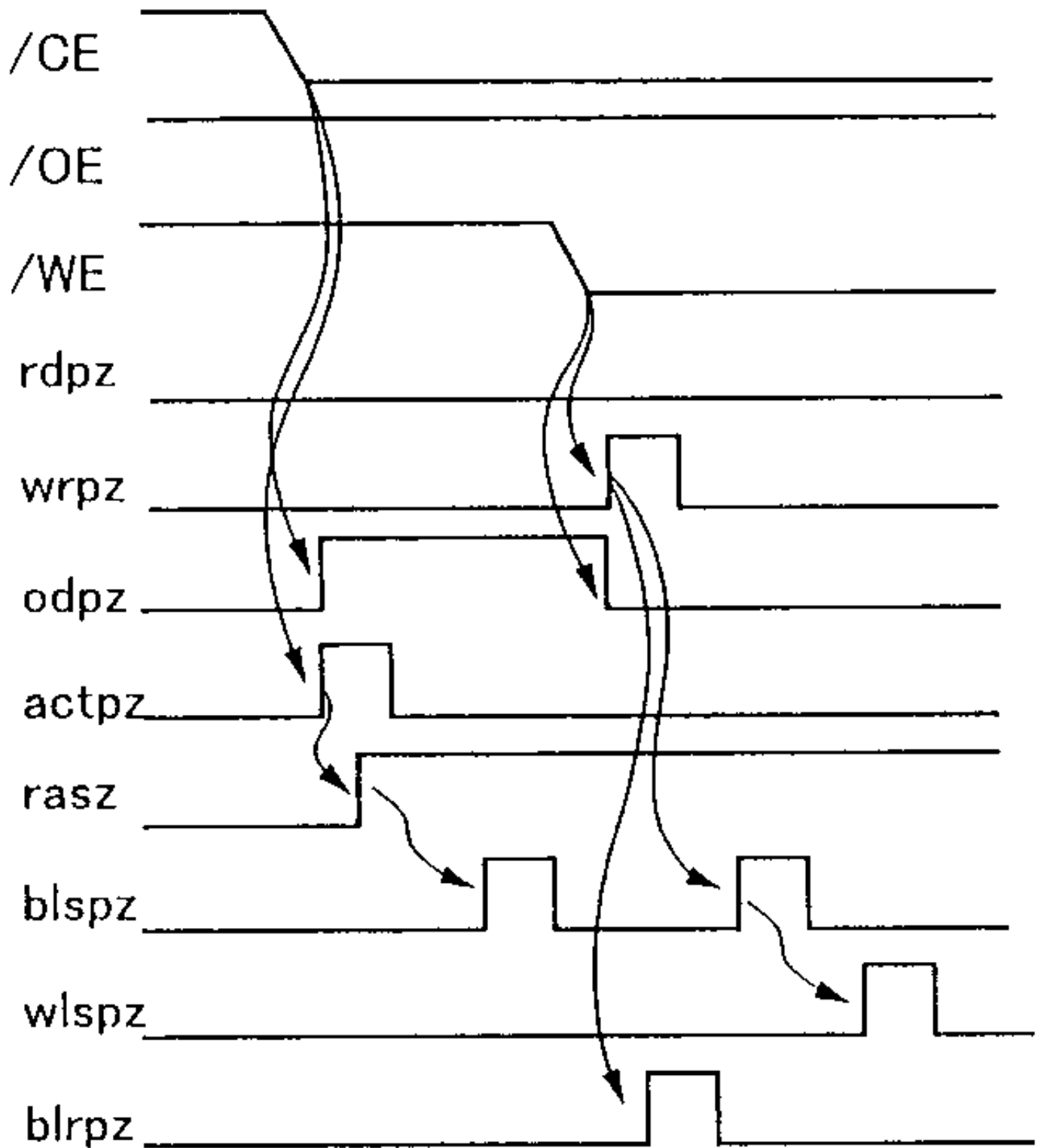
12c



13a



13b





14

