

(19)  
(12)

(KR)  
(A)

(51) 。 Int. Cl. <sup>7</sup>  
G11C 29/00

(11)  
(43)

2001 - 0093672  
2001 10 29

(21) 10 - 2001 - 0014558  
(22) 2001 03 21

(30) 2000 - 088408 2000 03 28 (JP)

(71) 가 가

1 1 1

(72) 가 가 가 1가 가

가 가 가 1가 가

가 가 가 1가 가

(74)

:

(54)

LSI DRAM , DRAM  
.  
DRAM (11, 12) , DRAM  
(13) , DRAM  
(14) , DRAM  
(18) , DRAM  
(15) DRAM  
DRAM

1

, , , , DRAM ,

1                    1                    DRAM (                    )                    DRAM L  
 SI

2    1   LSI                    2    DRAM

3    1   LSI                    2    DRAM

4                    2                    DRAM                    LSI

5                    3                    DRAM (                    ) 1                    (                    )  
                   DRAM                    LSI

6    5   LSI                    2    DRAM

7                    DRAM                    LSI                    2    DRAM

8                    DRAM                    LSI                    2    DRAM

9                    DRAM                    LSI                    2    DRAM                    DRAM

10 DRAM                    1

11 : 1 DRAM

12 : 2 DRAM

13 :

14 :

15 :

16 :

17 :

18 :

LSI, DRAM DRAM LSI , DRAM  
 AM ( LSI , ) DRAM ( ) DRAM , DR  
 , DRAM LSI , DRAM DRAM  
 7 8 , DRAM LSI 2 DRAM  
 , , 1 DRAM , 2 DRAM 1 DRAM 가  
 , 1 DRAM , BACT  
 (READ) tRAS BPRC  
 tRAS tPR , 2 DRAM  
 S , DRAM tRP , DRAM 가 tRA  
 9 , DRAM DRAM LSI 2 DRAM  
 , , 1 DRAM , 2 D  
 RAM , 2 DRAM , 1 DRAM  
 , , BACT BPRC DR  
 AM tRAS BACT tPR  
 , DRAM DRAM DRAM  
 DRAM tRAS , DRAM  
 가 tRP ,

10 DRAM

1

( ) 1 WLi . 1 MC BLi, /BLi  
 , S/A , CSLi BLi /BLi  
 / CS

DRAM LSI DRAM 가 . , DRAM 가 .

, DRAM 가

, DRAM

RAM 1 DRAM , D  
 , DRAM , DRAM 1 ,  
 , DRAM DRAM 1

2 DRAM , DRAM  
 , DRAM DRAM 1 ,  
 , DRAM DRAM

M 3 DRAM , , DRAM DRA  
 DRAM 1 , DRAM 1

1  
 1 1 DRAM ( ) LSI

LSI (11), 2 DRAM (12), 2 DRAM (11, 12), (13), (14), (15)

LSI (16), DRAM (17), DRAM (18)가 (14), (18)  
6) (13), (15)

(14), DRAM (13), 2 DRAM (11, 12)

(15) 2 DRAM (11, 12), 2 DRAM (11, 12) (18)

2 3 1 LSI, 2 DRAM (11, 12)

(13) DRAM, 2 DRAM (11, 12), (14)  
2 DRAM (11, 12), 2 DRAM (11, 12), (15), (18)

, 2 DRAM (11, 12), 1 DRAM (11), 2 DRAM (12), 2 DRAM (11, 12)  
DRAM (11, 12), BACT (15), 1 DRAM (11), 1 DRAM (11), (READ), 2 DRAM (12), (READ), 2 (15), 2 DRAM (12), 2, 2

2 DRAM (11, 12), DRAM LSI

< 2 >

1 DRAM LSI 2 DRAM (11, 12) 1 (13)  
가 가 가 DRAM DRAM LSI, 1

4 2 DRAM LSI

LSI 1 DRAM (41a), 2 DRAM (42a), 1 DRAM (41)  
a) (42a) 1 (41b), 2 DRAM (42b), (25)

LSI (26) , DRAM (27) , DRAM  
 (28)가 , (26) 1 (41a) 2  
 (42a) , (27) 1 (41b) 2 (42b)  
 , (28) (25) .

RAM (41a) , 2 DRAM (42b) 2 DRAM (42a) (41b) 1 D  
 (25) 1 DRAM (41a) 1 (41b) 1 2 DRA  
 M (42a) 2 (42b) 2 (25)  
 ( ) , 1 2 (25)  
 ( ) .

2 DRAM LSI , 2 DRAM (41a, 42a)  
 가 , 1 LSI 가 , 1 가  
 , , 1 (41b) 2 (42b) ( 128 8  
 )

< 2 >

2 LSI DRAM 1 (41b) 2 (42b)  
 , (24) 가 , , 1 (41a) " 1" , 2  
 (42a) " 0" , 2 (41a, 42a) 가 .

< 3 >

DRAM , DRAM  
 , .

5 3 DRAM DRAM LSI 1 ( , )  
 DRAM LSI .

LSI (50) , 1 DRAM (51) , 2 DRAM (52) , DRAM  
 (51, 52) (53) , (54)  
 (55) .

LSI (56) , DRAM (57)  
 , DRAM (58)가 , (56)  
 (53) , (57) (54) , (58) (55)

(54) , DRAM 2 DRAM  
 (51, 52) .

(55) 2 DRAM (51, 52) (58)

DRAM (53) , DRAM (51, 52) ,  
DRAM (51, 52) .

6 5 LSI 2 DRAM (51, 52) DRAM  
( ) .

, 1 DRAM (51) BACT (55) 1 DRAM (51)  
가 , 1 DRAM (51)  
, BPRC , 1 DRAM (51) READ  
, 2 DRAM (52) BACT , 1 DRAM (51)  
BPRC (55) 2 DRAM (52) 가 .

, 1 DRAM (51) 1 , , 2 DRAM (52)  
가 , 2 DRAM (52)  
READ BPRC 1 DRAM (51) BACT , 2 DRAM (52)  
(55) 1 DRAM (51) 가 .

tRP DRAM (51, 52)  
가 ( , tRP )

, , DRAM , DRAM .

(57)

1.

DRAM ,

DRAM

, DRAM

DRAM

1

,  
, DRAM 1  
,  
DRAM

2.

1 , DRAM , DRAM  
, 1 DRAM , DRAM  
, , DRAM , 가

3.

,  
DRAM ,  
DRAM , DRAM  
, ,  
, , DRAM 1  
, , DRAM

4.

3 , DRAM , DRAM  
, ,  
, 가 ,

5.

1 4 , 가 ,

6.

,  
DRAM ,  
DRAM  
,  
DRAM DRAM 1 ,  
DRAM 1

7.

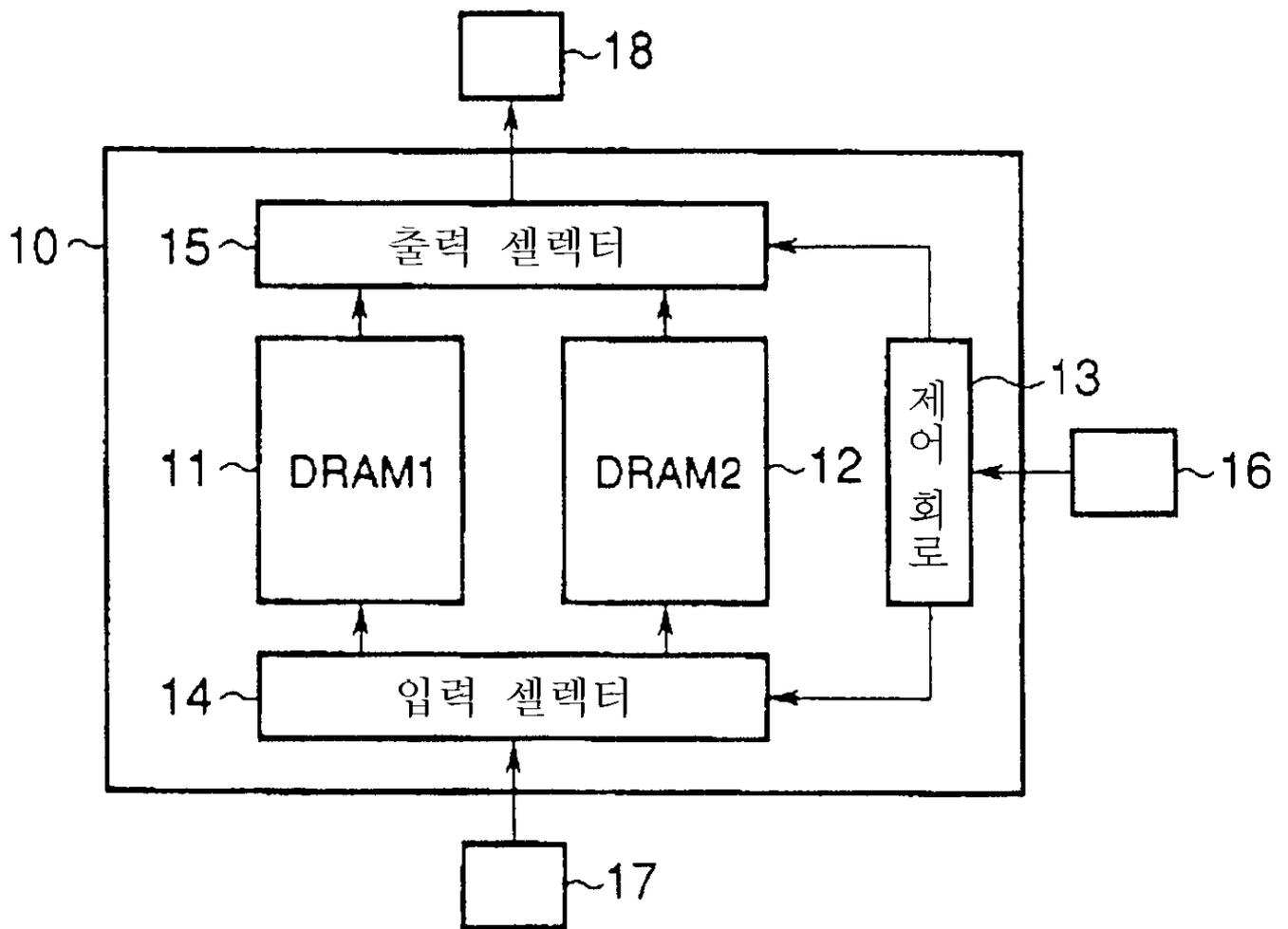
6 , , DRAM

8.

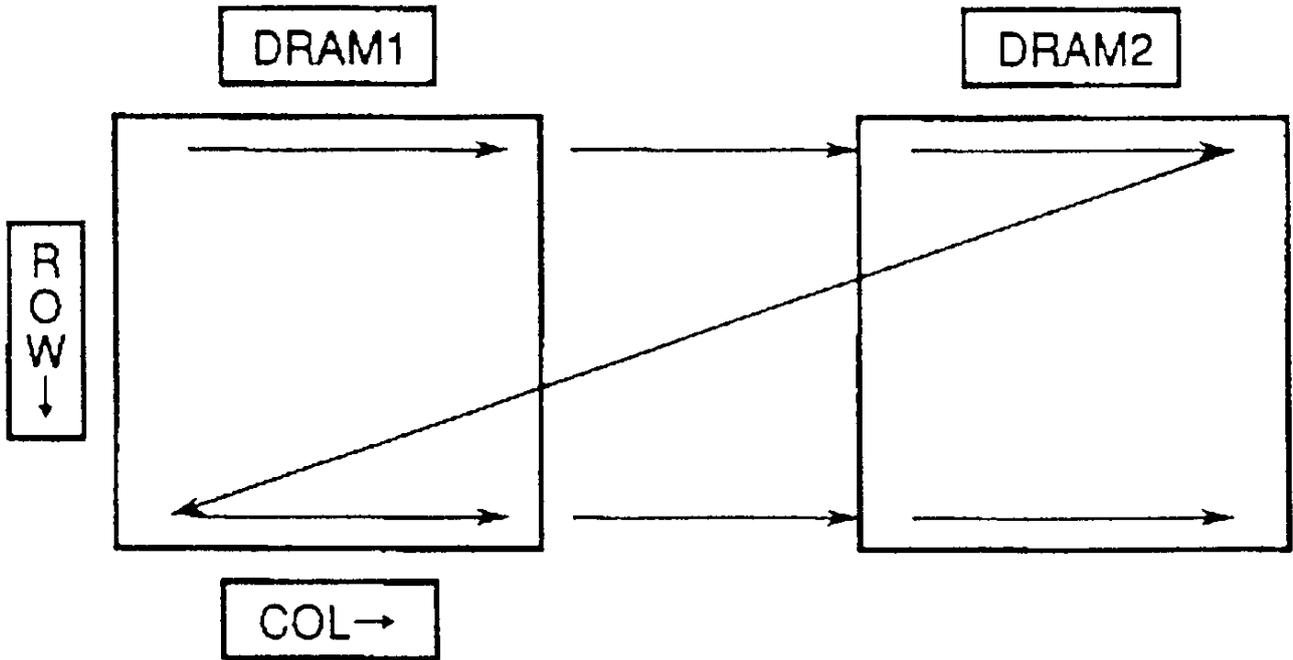
7 , DRAM 1 DRAM 가 BACT 1 DRAM ,  
 1 DRAM , BPRC ,

1 DRAM READ , 1 DRAM  
 BACT , 1 DRAM BPRC ,  
 1 DRAM 가 , 1 DRAM  
 1 가 , 1 DRAM

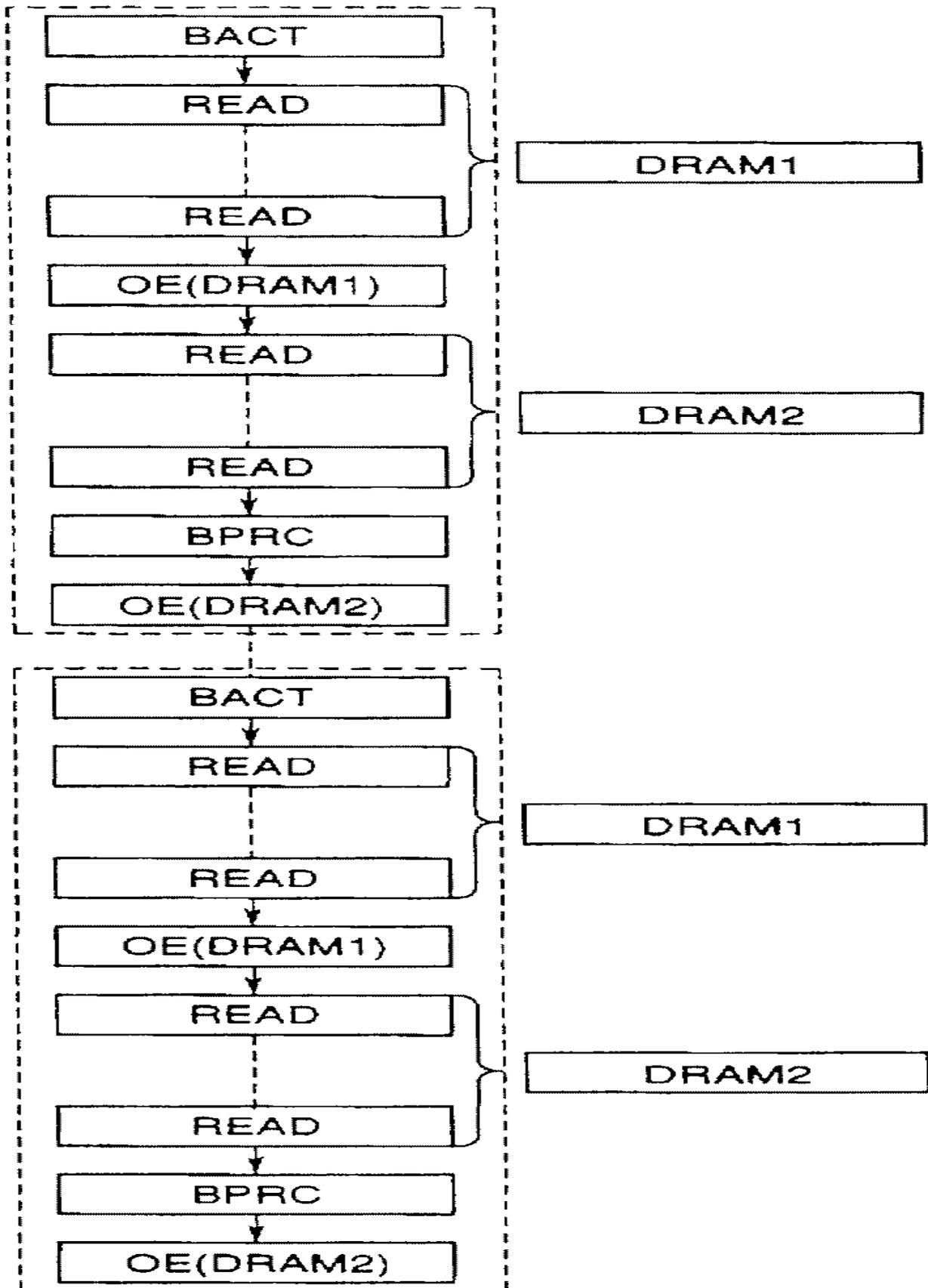
1

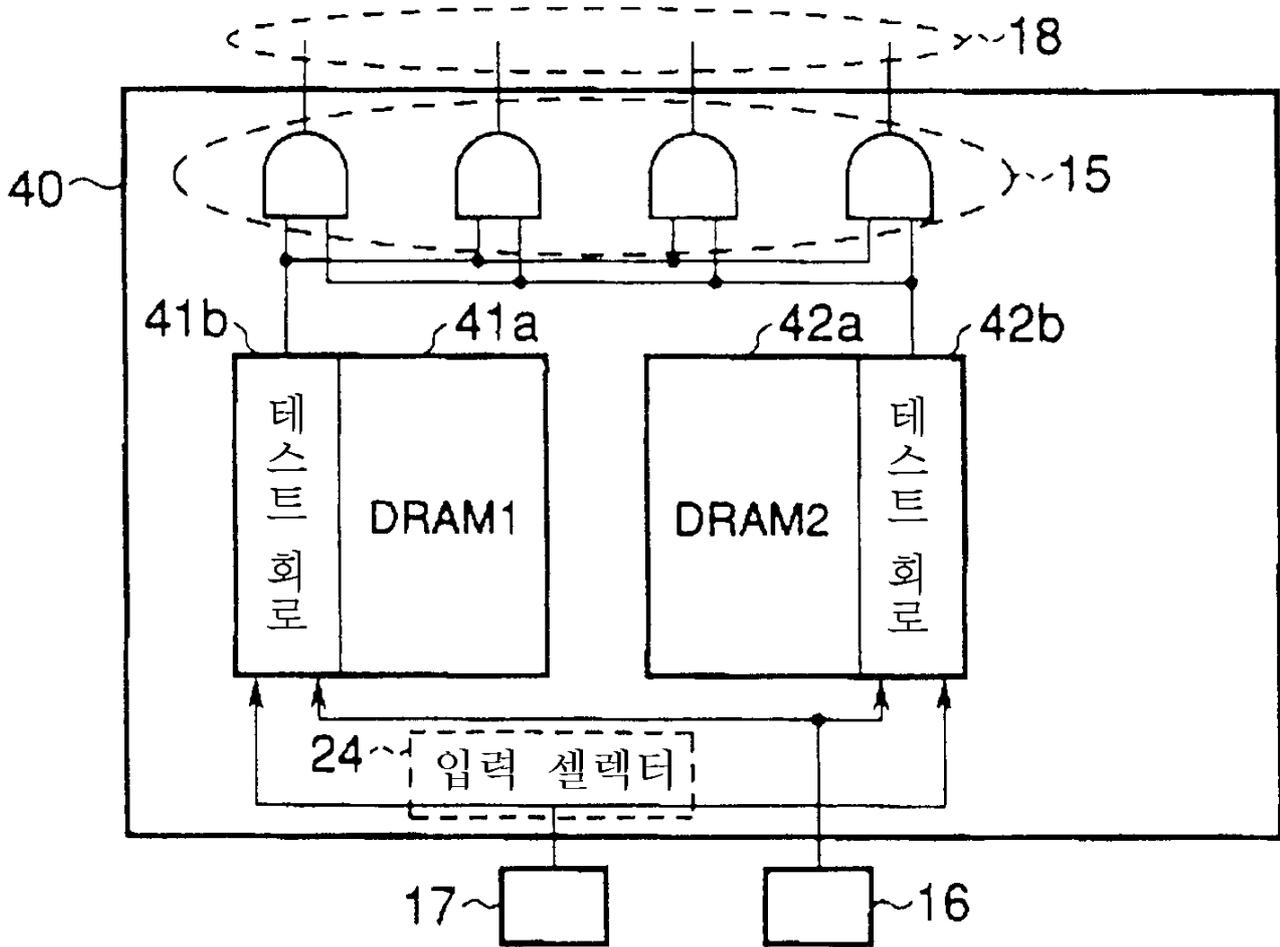


2

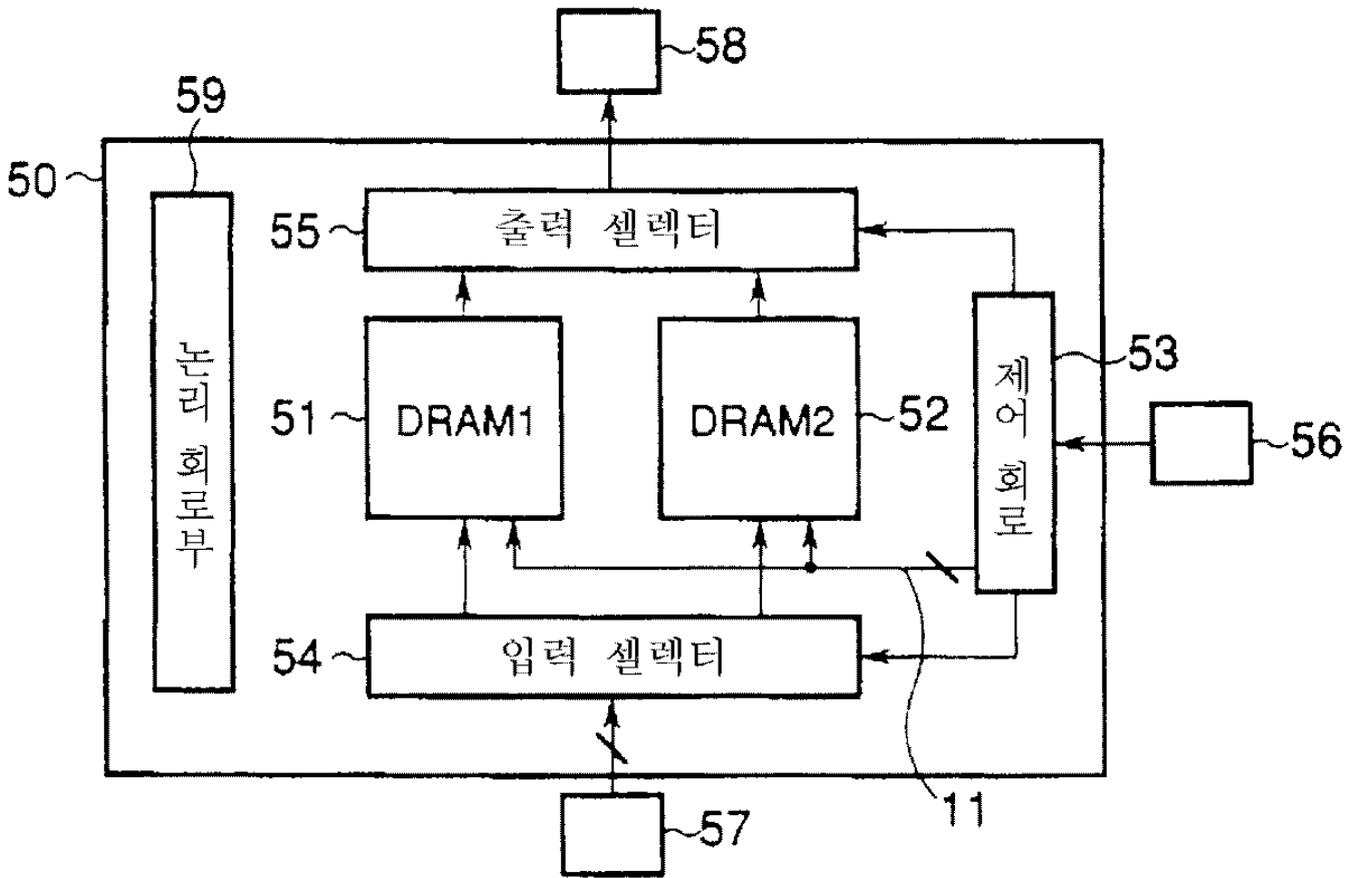


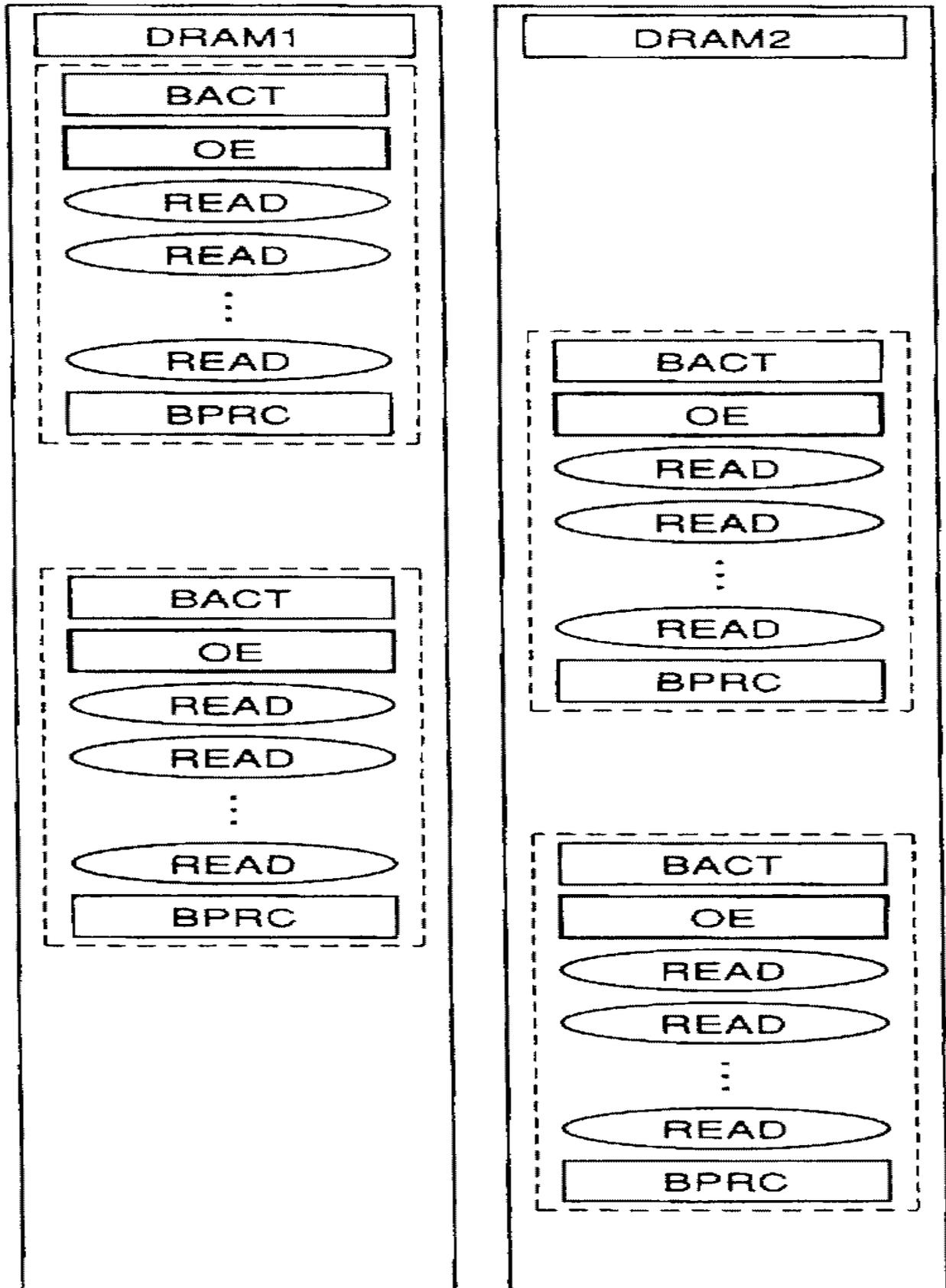
3





5





7

