

(19) (KR)
(12) (B1)

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| (51) Int. Cl. ⁷ G11C 11/406 | (45) (11) (24) | 2003 12 06 10-0408615 2003 11 25 |
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| (21) 10-2001-0019955 (22) 2001 04 13 | (65) (43) | 2001-0107547 2001 12 07 |
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(30) 2000-152651 2000 05 24 (JP)

(73) 가 가
2 2 3

(72) 2 2-3 가 가
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2 2-3 가 가

가 2 2-3 가 가

(74)

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(54) 가

| | | | | |
|-------|------------|---|---|---------|
| (2) 가 | DRAM (4) 가 | 가 | 가 | (132) 가 |
| . | . | . | . | . |
| 가 | 가 | 가 | 가 | 가 |

| | | | | |
|----|------|-------|--------------|--------|
| 1 | 1 | 1 | (1) | |
| 2 | 1 | | (132) | |
| 3 | | | | |
| 4 | 3 | | | |
| 5 | 2 | | (312) | 1 |
| 6 | 5 | | (312) | |
| 7 | | (312) | | (312a) |
| 8 | 7 | | (312a) | |
| 9 | 2 | | | |
| 10 | 9 | DRAM | | |
| 11 | 10 | | PCKT1, PCKT2 | 1 |
| 12 | | | 2 | |
| 13 | | | 3 | |
| 14 | | | | |
| 15 | | I/O | | |
| 16 | 15 | | (1172a) | |
| 17 | 14 | | (1154) | |
| 18 | 17 | | (1154) | (528) |
| 19 | | | | |
| 20 | | | | |
| 21 | | | 2 | |
| 22 | | | | |
| 23 | 21 | | (620) | |
| 24 | 1.5V | 3.3V | | |
| 25 | | | 1 | (660) |
| 26 | | | | (680) |
| 27 | | | | (710) |
| 28 | | | | (740) |
| 29 | | | | (757) |
| 30 | 3 | | 3 | |
| 31 | 30 | DRAM | (800) | |
| 32 | 30 | / | (810) | |
| 33 | 30 | | (806) | |
| 34 | 33 | | DRAM | |
| 35 | | | (1000) | |
| 36 | | LSI | | |
| 37 | 36 | DRAM | MEM | |

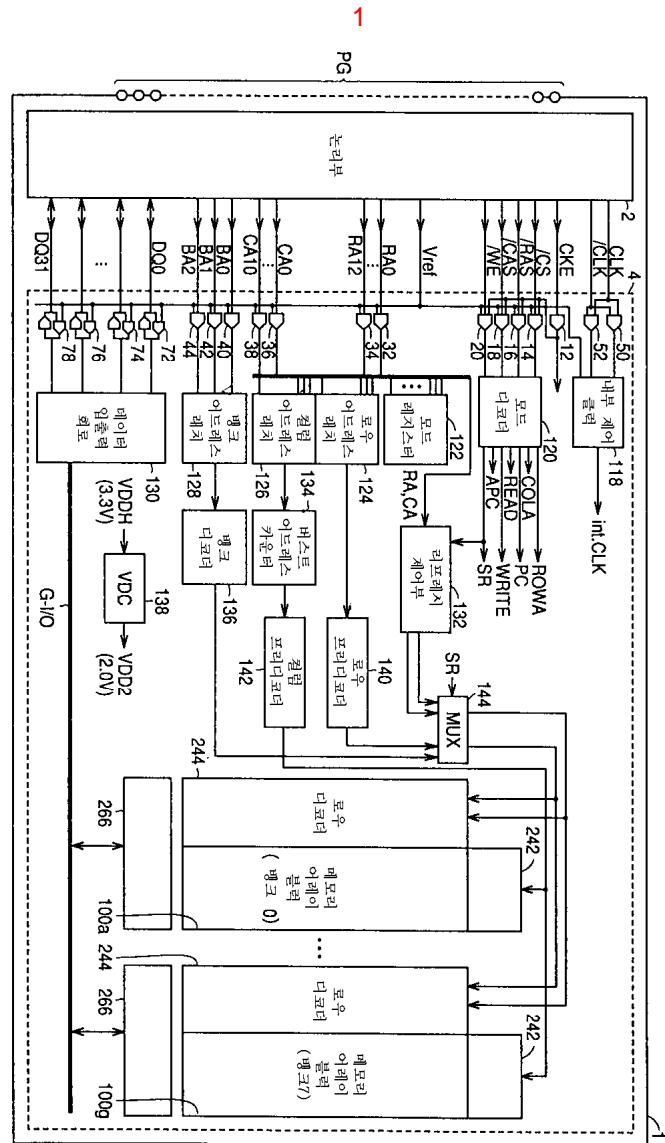
36 LSI
 35 , LSI CH LG DRAM MEM DRAM
 PP VGEN1 , VBB VGEN2 V
 LG T50 3.3V LVDDH가 T51 1.5V
 LVDDL , DRAM MEM T52 3.3V DVDDH가
 T53 1.5V DVDDL

LSI , DRAM MEM
LG LVDDH, LVDDL 0V
LG
LSI 가 가 .
LSI가 DRAM
가

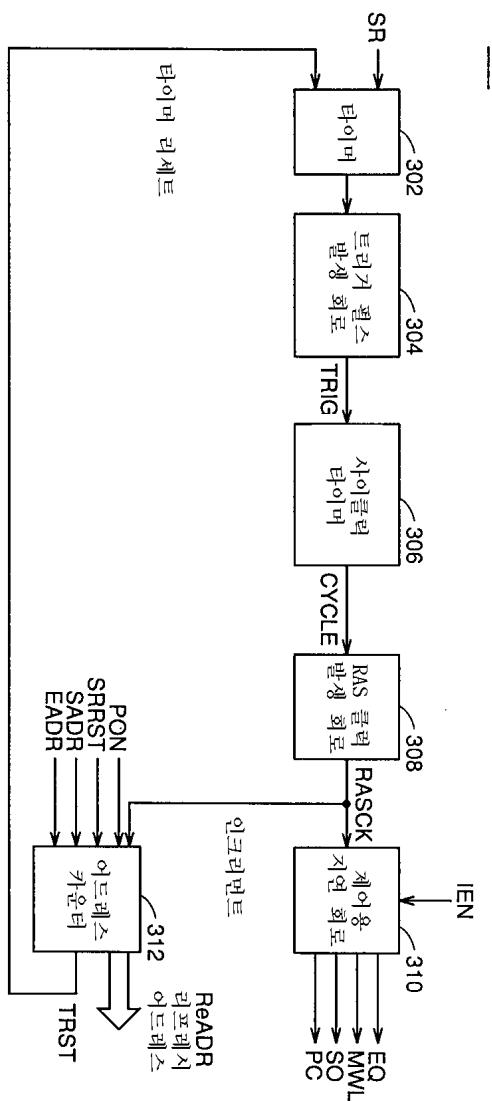
$$[\begin{array}{cc} 1 & 1 \end{array}]^t \begin{array}{c} 1 \\ 1 \end{array} \quad (1)$$

1 (2) , (1) PG (2)가 DRAM (4) (2) ,
 (2) CLK, /CLK, CKE, /CS, /RAS, /CAS, /WE , BA0 Vref ,
 RA0 RA12 CA0 CA10 , BA2 DRA
 M (4) (2) DRAM (4) 1 (2) DRAM (4) DQ0 DQ31
 DRAM (4) (2) DRAM (4) 1 , 1 ,
) , (50, 52) CLK /CLK (50, 52) int.CLK (50, 52)
 8) , CKE, /CS, /RAS, /CAS /WE int.CLK (11)
 (12 20) (120) DRAM (4) 1 ,
 DRAM (4) (2) DRAM (4) 1 ,
 (120) CKE DRAM (4) 1 ,
 (L) /CS DRAM (4) 1 ,
 WRITE, APC DRAM (4) 1 ,
 ROWA SR DRAM (4) 1 ,
 PC ACT DRAM (4) 1 ,
 APC SR DRAM (4) 1 ,
 , SR가 DRAM (4) 1 ,
 DRAM (4) H L VREF
 DRAM (4) ,
 RA12 (122) , (122) , RA0
 (122) , (124) , CA0 CA10
 (122) , (126) , (124) ,
 (122) , (140) , (126) , (134) ,
 (122) , (134) , (40 44) , (128) , (128)
 42) , BA0 BA2 int.CLK ,
 , , , ,
 CL BA0 BA2 (2) BA0 BA
 2 , (128) , (136) ,
 DRAM (4) ,
 (140) , (132) , (132)가 SR (144)
 DRAM (4) / (100a 100g) , (144) , 0 (7)
 (244) , (142) , (242) ,
 I/O G-I/O , , G-I/O
 I/O (266) , , G-I/O
 G-I/O (2) DQ0 DQ31 (130) , (72 78) (130)

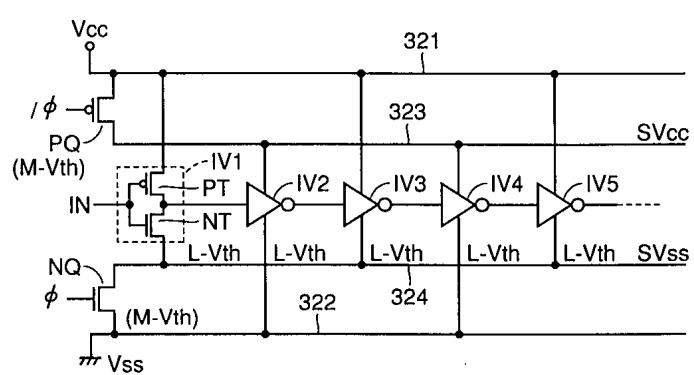
| | | | | | |
|----------------------------|----------------------------------|------------------------------------|--|---|--------------------------------------|
| 1 | (120) | SR | (132) | 2 | (302) |
| t2 | TRIG | (302)가 | , | , | (304)가 |
| YCLE 336), , | 가 | RASCK가 | (306)가 | ReADR0 | C (312) |
| IEN | (336) 가 | (336)가 | (336)가 | ReADR0 | , |
| t2 t3 | IEN | 가 | (340) | , | (344) |
| , | , | , | 가 | (310) | 가 |
| t3 | (336)가 (338) | ReADR0 | IEN | (332)가 | 가 |
| , | t4 | (334)가 ReADR0 | EADR | (336)가 (340)가 | RASCK |
| IEN | , | t5 | (336)가 (302) | 가 | , |
| t6 | TRST (312) | (302)가 (312)가 | , | TRIG가 | t7 , |
| t8 | CKE가 H CLK가 | 가 | 가 | DRAM | DRAM |
| 7 7 40), AND | (312) (342) (312) (352) | (312a) (344) (332, 334) 가 | (312a) (352) (312) SELC (306) 가 | (312) (352) (312) SADR 2 4012 2 4012 4 1 32ms | (338, 3 (354) EADR R RAS |
| eADR , | CK 4 | ReADR (302) (312a) | (334)가 TRST 가 (302) | EADR | , |
| 8 7 7, 8 t2 t2 | (336)가 (354)가 2 , | 2 (302) t1 가 가 | (334)가 TRST 가 (302) | 6 | 6 |
| t2 (332) , | (302) (352)가 , | SADR 6 | TRIG가 CYCLE ReADR | 가 | 6 |



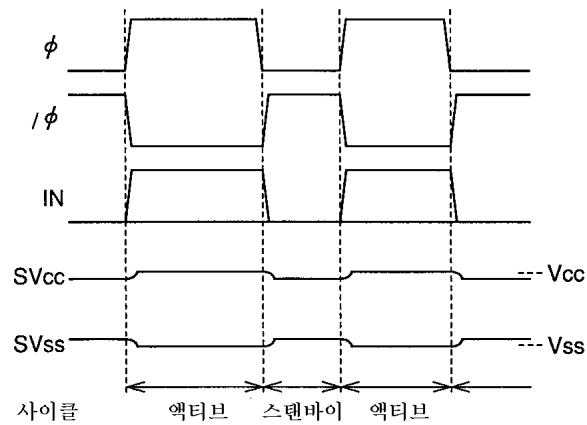
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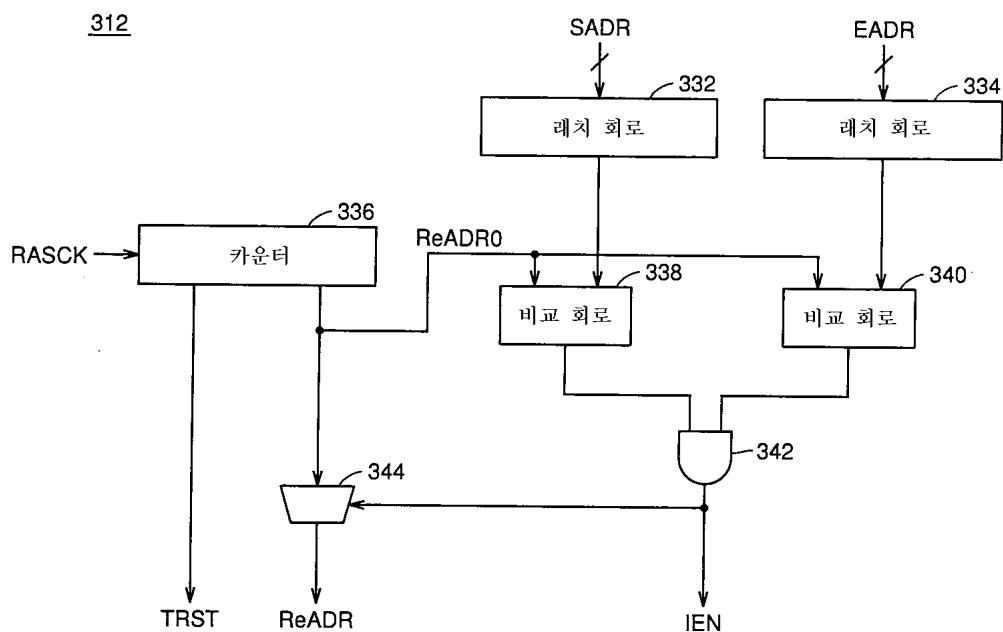


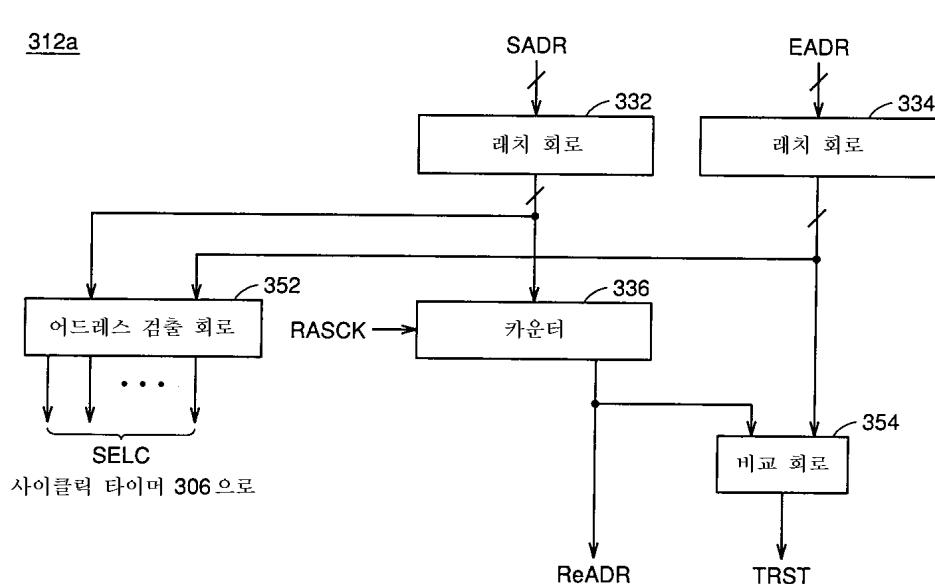
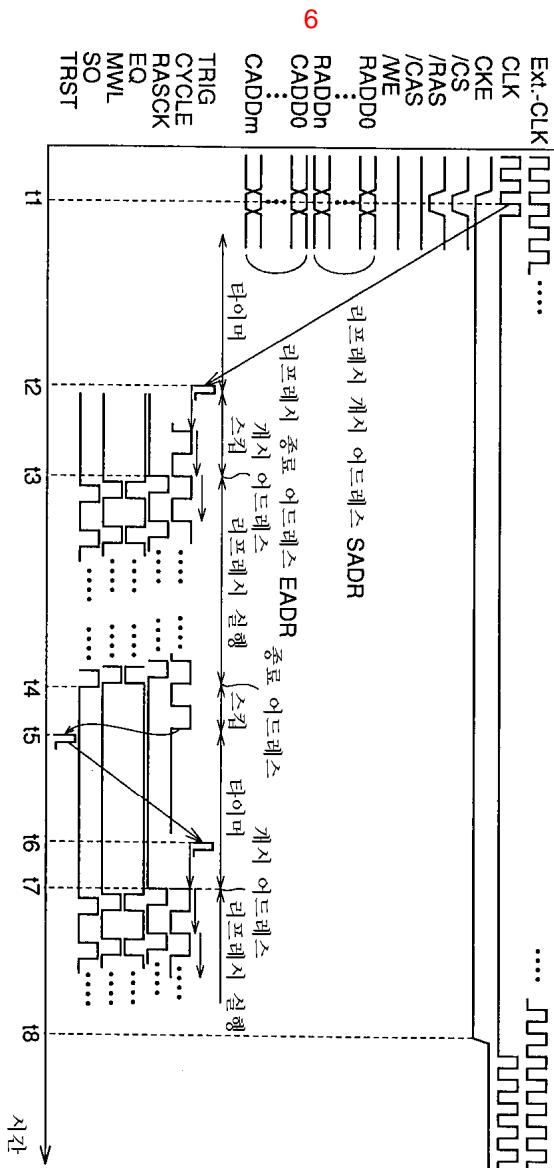
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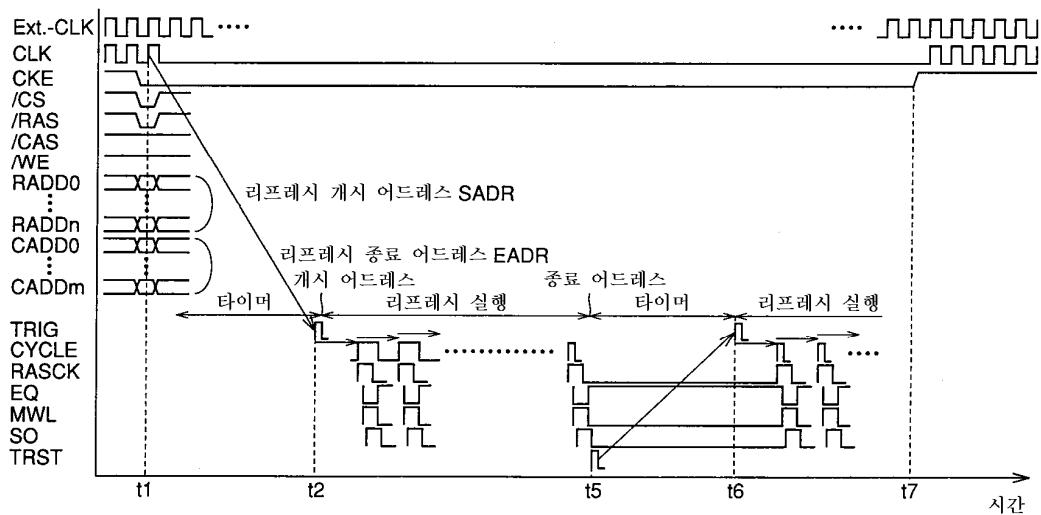
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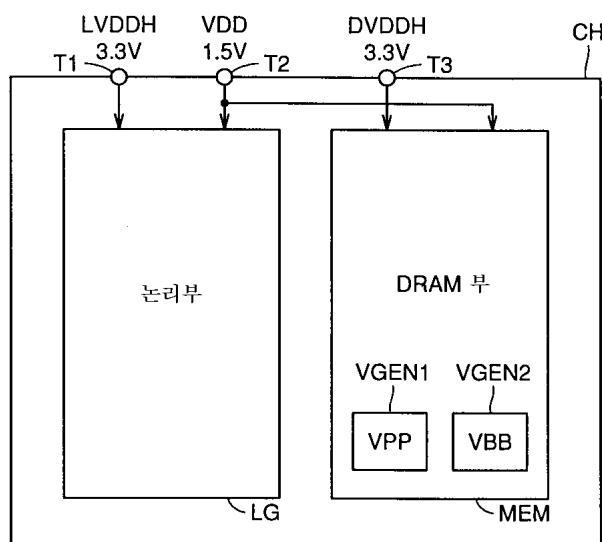




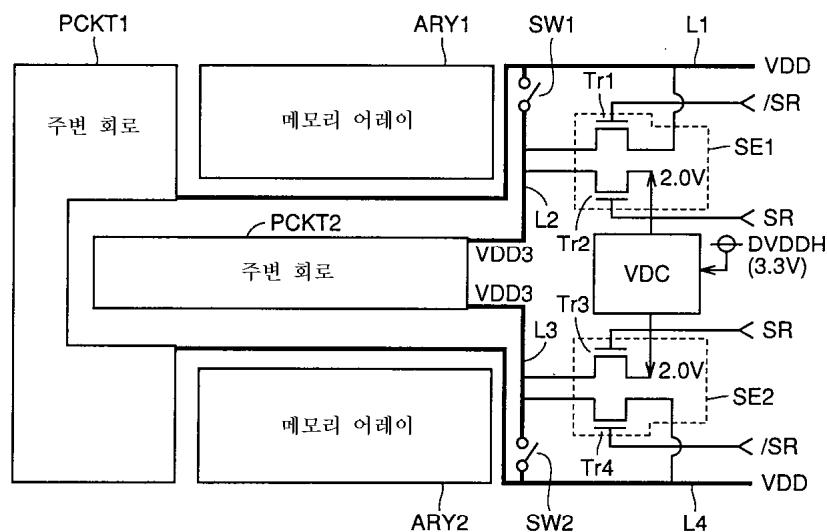
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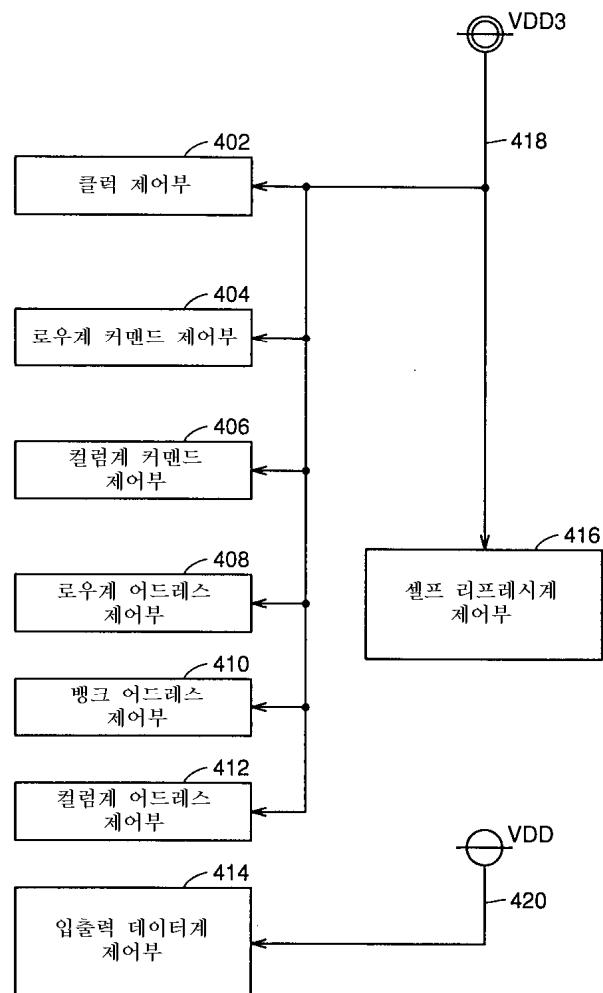
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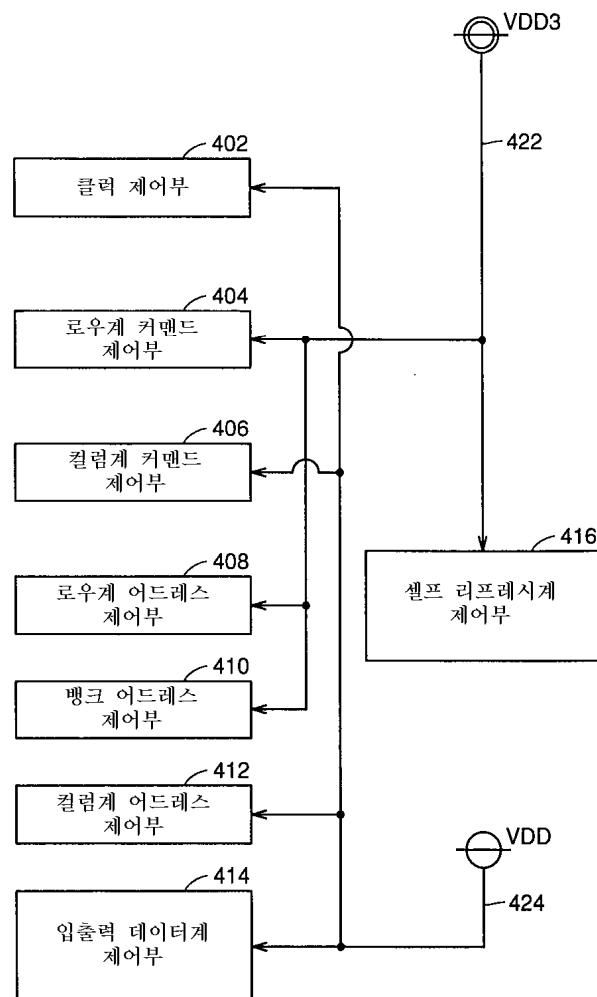


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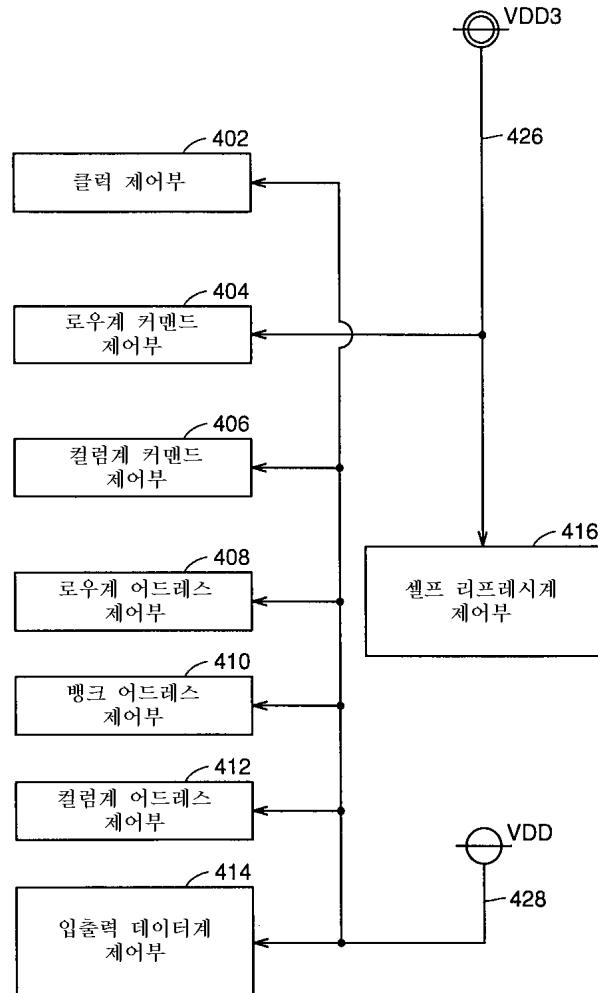


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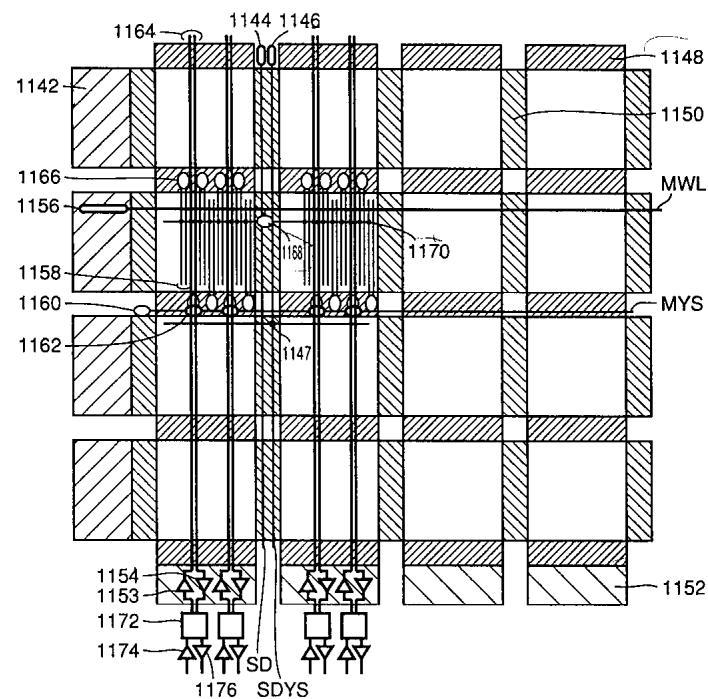




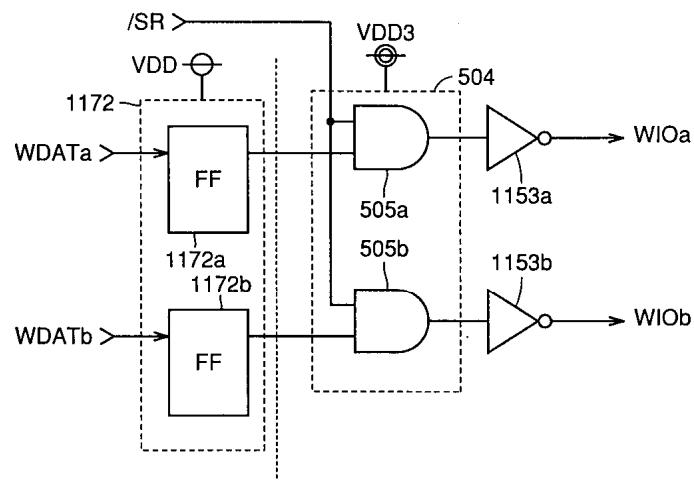
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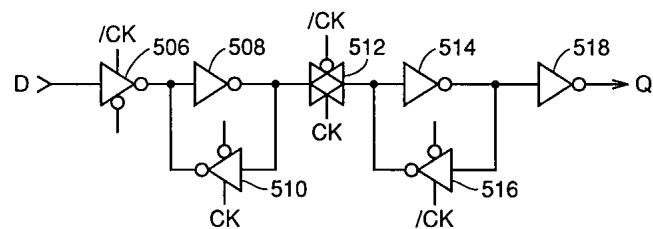
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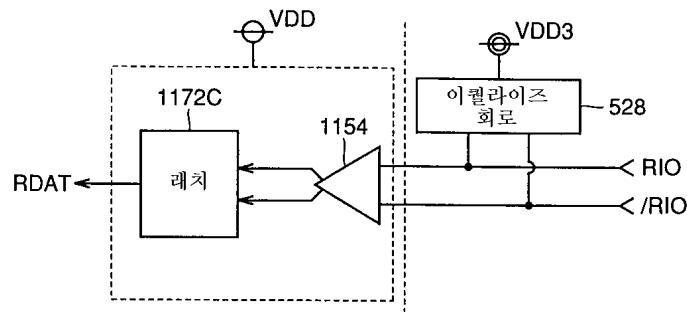
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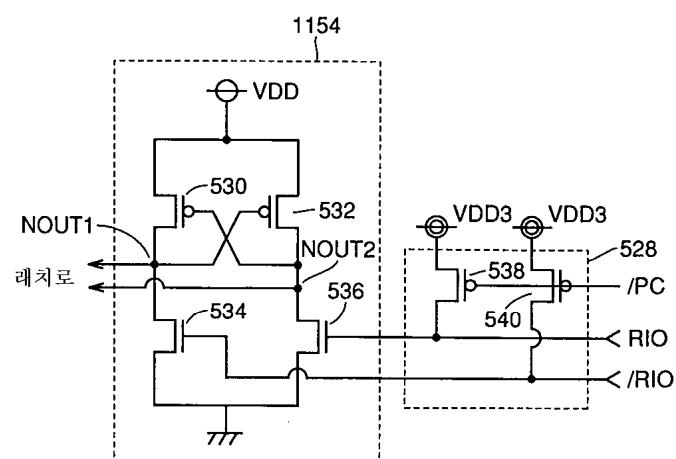
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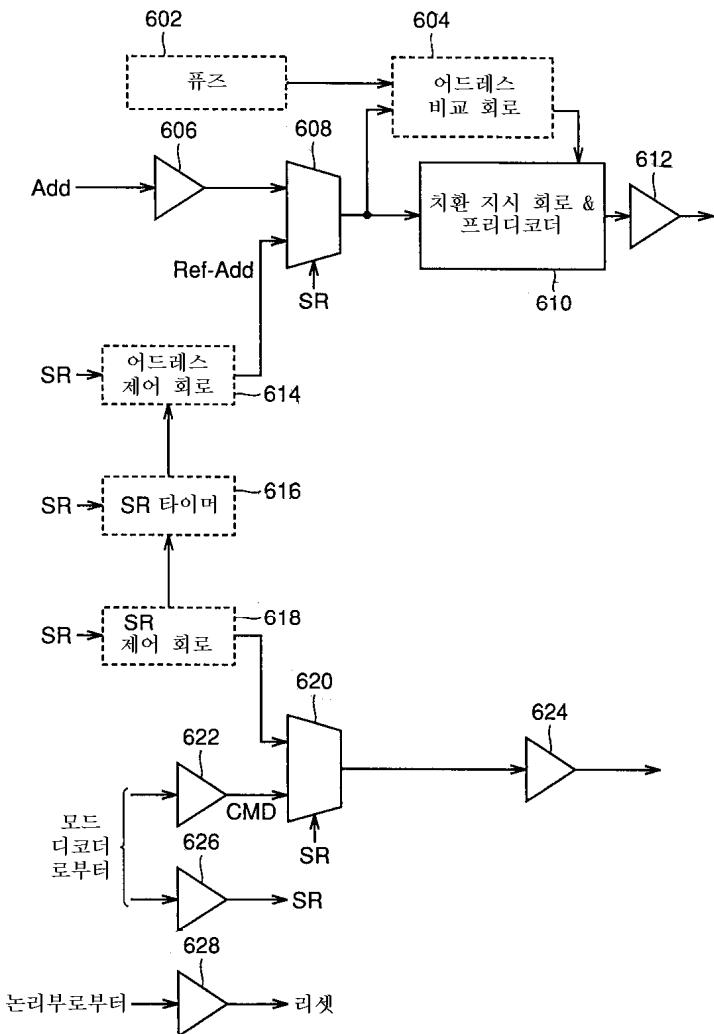
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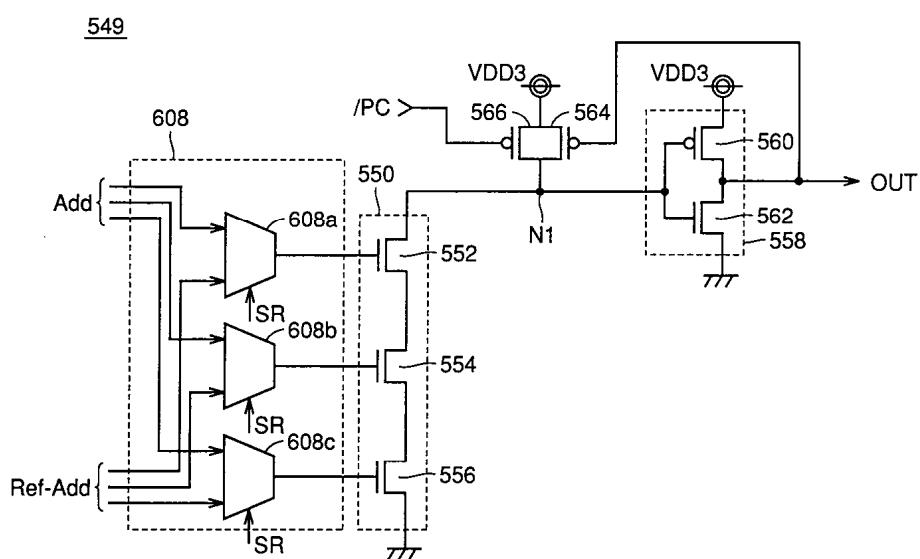
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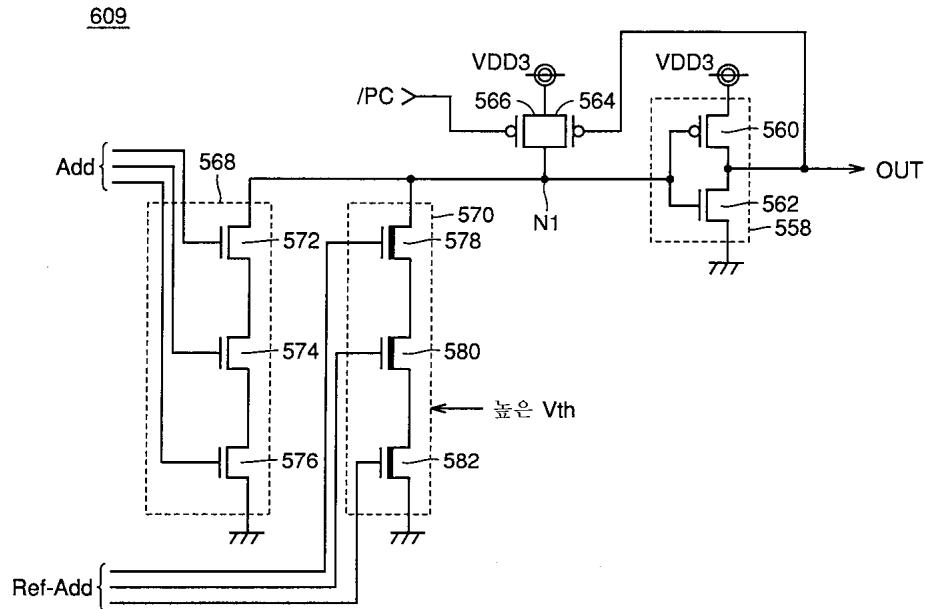
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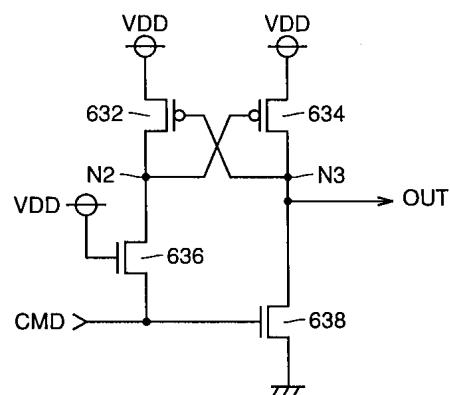
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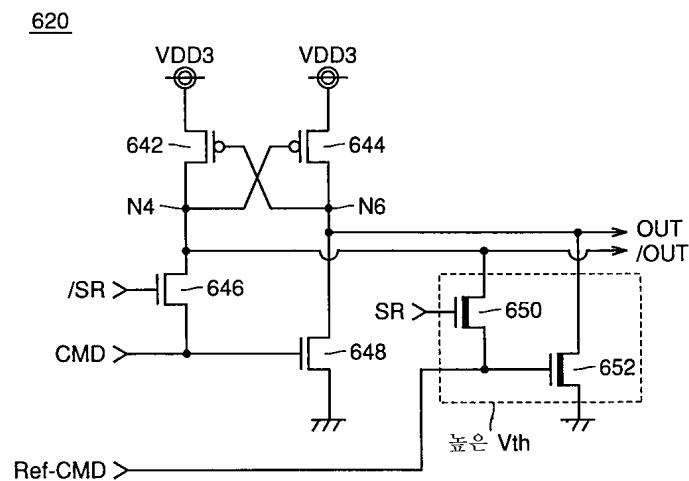
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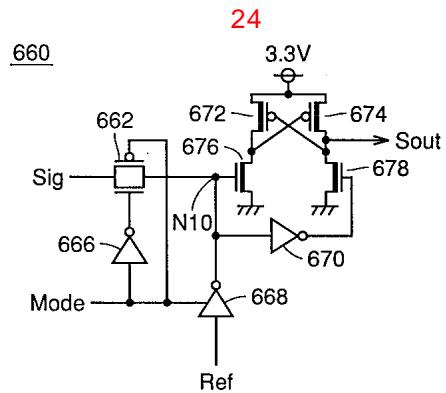


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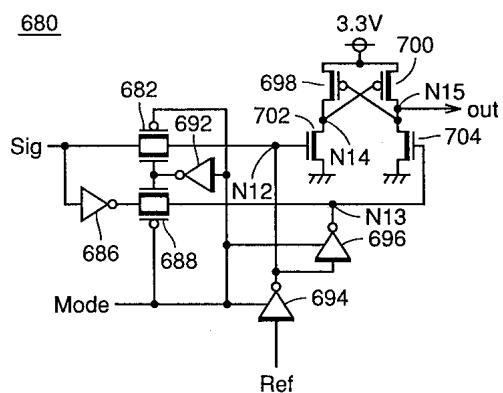


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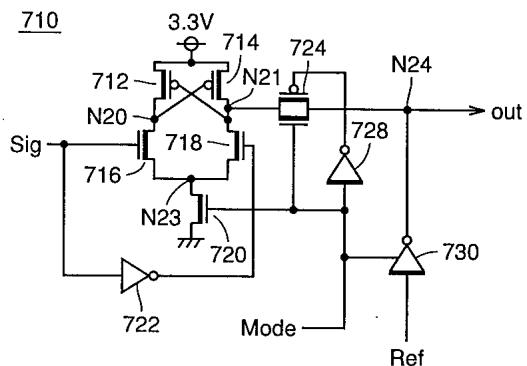




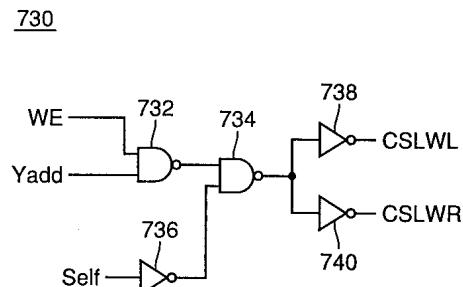
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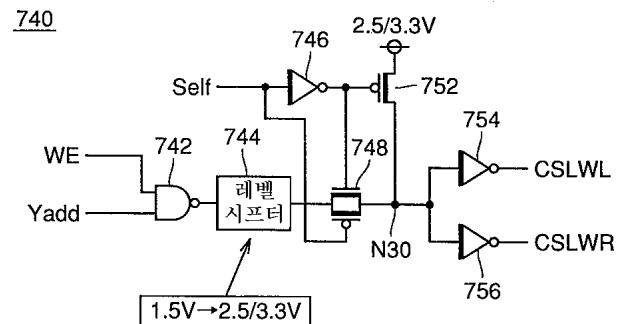


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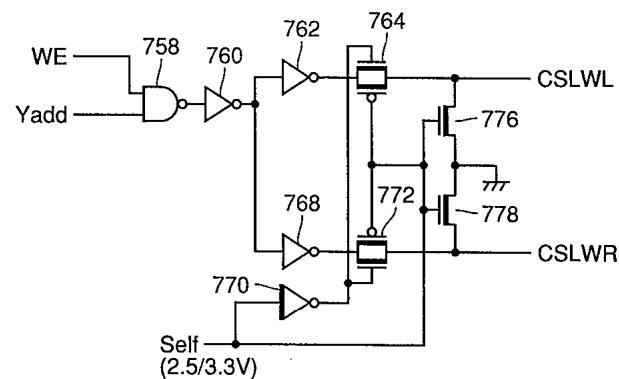
all 1.5V Tr

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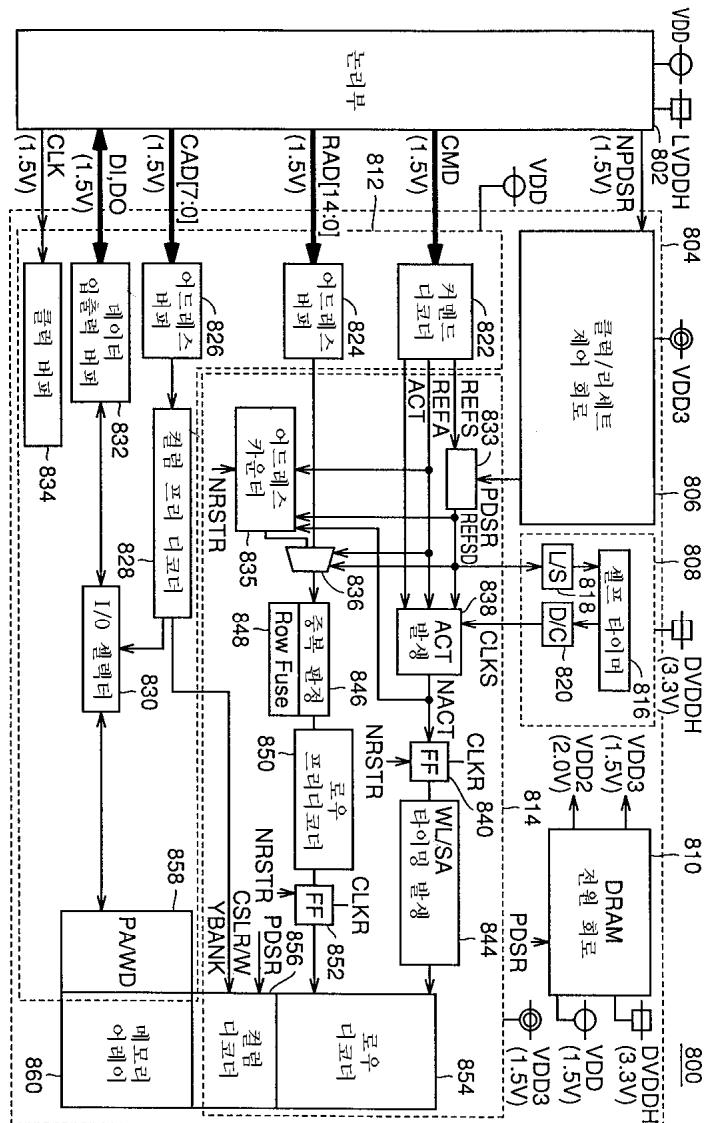


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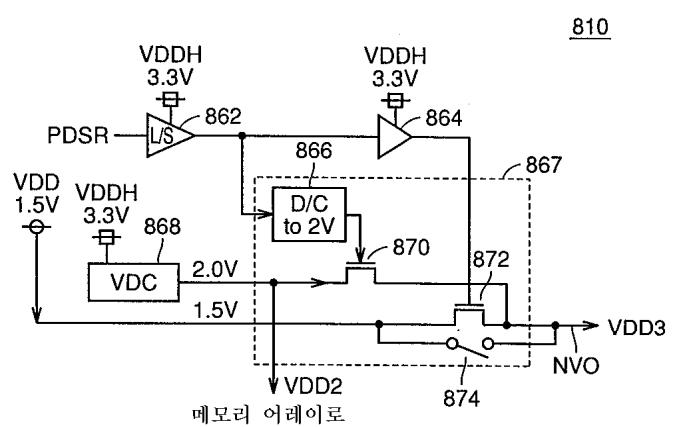
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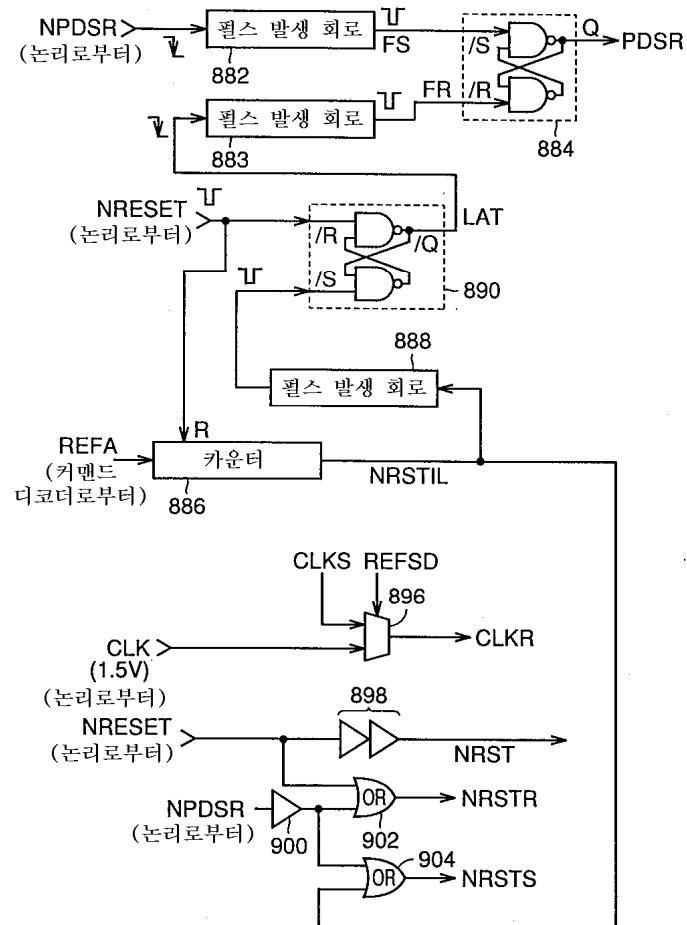


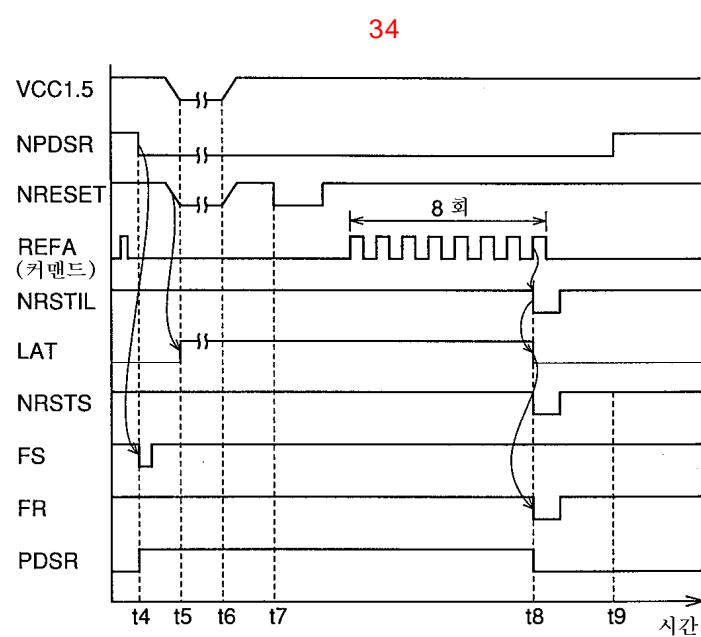
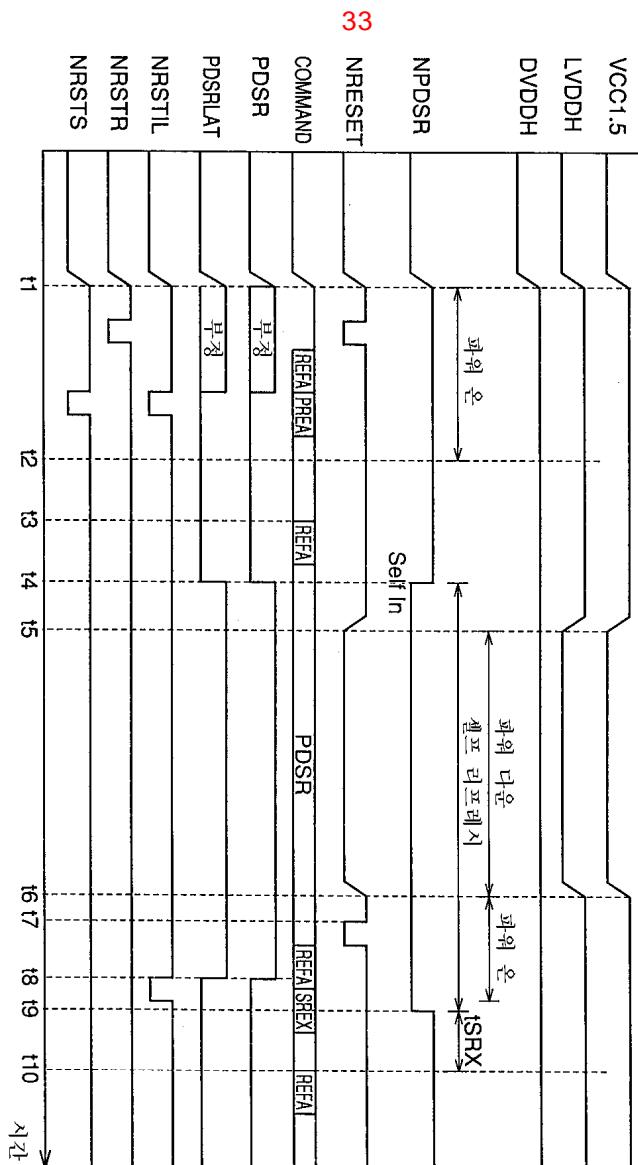
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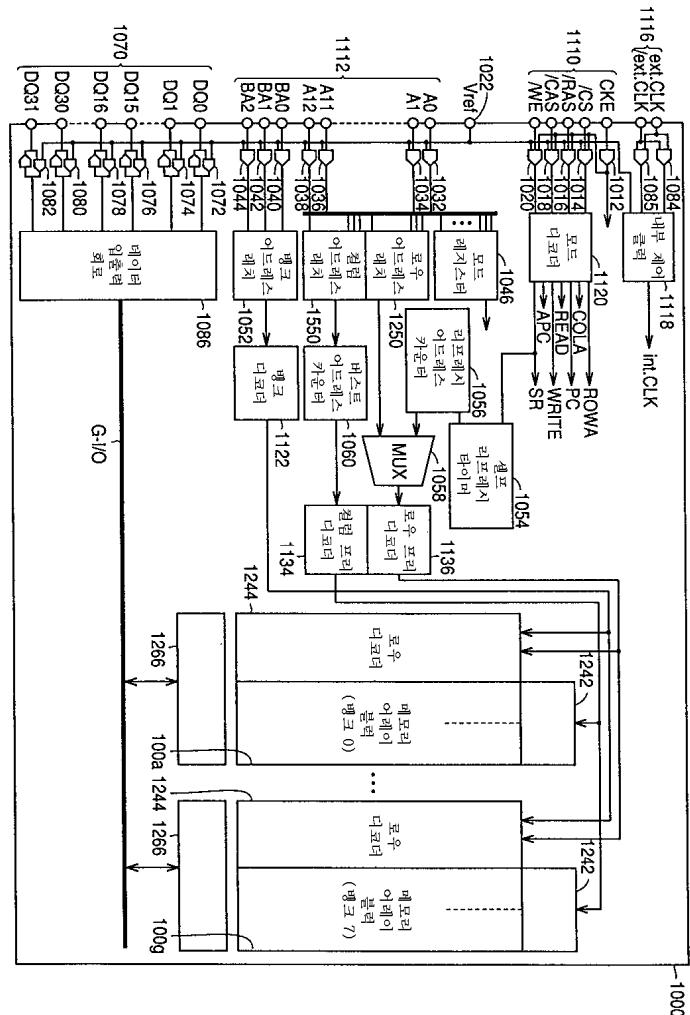
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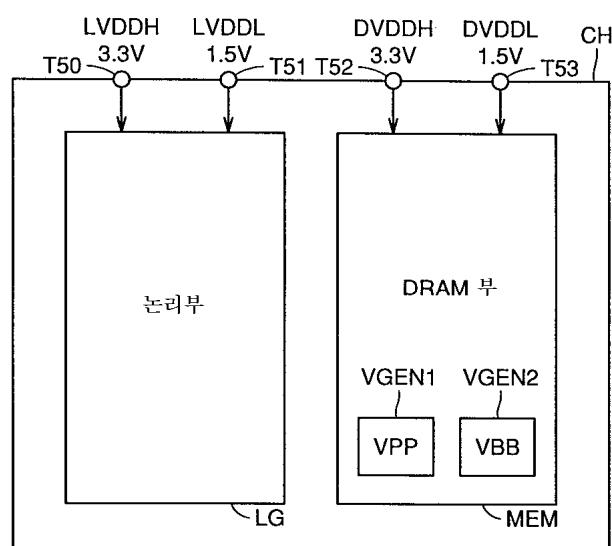
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