

(19)
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(B1)

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10 - 2000 - 0036987
2000 06 30

(65)
(43)

2001 - 0007603
2001 01 26

(30)

1999 - 187052

1999 06 30

(JP)

(73)

가 가

1 1 1

(72)

가

가 가 가

- - 1가 가

가

가 가 가

- - 1가 가

/ADRS

가 가 가

- - 1가 가

가 가 가

- - 1가 가

(74)

:

(54)

,

가

.

,

(14),

(11)

(12),

(20), (16), (18),
 (19), AND ,
 1
 , , , ,
 1 1
 2 1 PD (29)
 3 1 (30)
 4 1 FCLT (31)
 5 1 (19)
 6 1 , (power down entry) , (power do
 wn exit)
 7 . DRAM
 8 . DRAM
 9 I
 10
 11 2 . DRAM
 12 . DRAM EXTCLKT
 13 11 PD (101)
 14 11 (102)
 15 11 C FCLT (31C)

16 11 , C
 .
 17 11 가 - (non - active)
 가 , , 가 .
 18 STBD .
 19 18 .
 20 18 (jitter) 1 ,
 가 .
 21 18 (22) .
 22 18 .

<

- 11 :
- 12 : ()
- 13, 15 :
- 14 :
- 16 :
- 17 :
- 18 :
- 19 :
- 20 :
- 21 :
- 22 :
- 23 :
- 24 :
- 25, 26, 27, 28 : AND
- 29, 101 : PD

30, 102 :

31, 31T, 31C : FCLT

DRAM (double data rate synchronous DRAM)

DRAM

가

(,

(,)

가 가

가

, 가

가

가

18
Backward Delay)

(特願平)11 - 35946

STBD (Synchronous Traced

(11), (12), (13)
(14), (14) (13)
(15) (16), (14) (16)
(17), (14)
(16) (14) (18),
(14) (18) (PT, bPT)
(19), (20), (18)
(21), (18) (12) (22)
(23)

, (17) (14) N (13) (18) N (16)
(N - 1) (15) (17) .

19 18 (14), (16) (18) STBD
19 , 18 .

, 19 EXTCLKT (11) .
EXTCLKT , (11) CLKSINT (11)
Trc , 19 CLKSINT , EXTCLKT Trc
(11) CLKSINT , (12) (19)
(23) (16) .

(19) , CLKSINT , 19 CLKSINT
Wp PT, bPT . PT, bPT W
p , (20) Tdr , (Trc+ Tdr) , (T
rc+ Tdr) (12) (14) .

(12) , (11) Trc , (20) Tdr
(Trc+ Tdr) , (12) FCLINT , 19
(11) CLKSINT (Trc+ Tdr) , (14)
.

(14) , (13) , PT가 "L" (13) .
, , PT가 "H" (前段) .

(12) FCLINT 가 , PT가 "H"
{ - (Trc+ Tdr) } , FCLINT가 (14) .

(18) , (14) (17) ,
가 , (18) (17) , (16)
(14) (13) (17) ,

, 가 (14) (13) (17)
(16) (17) / 가

(15) , (17) (16)
(15) , (15) .

, (15), (11) (17) CLKINT ((23) (16) CLKINT2)
 (15) .
 PT가 "H" , CLKINT2가 "H"
 (17) (16) (15)(18 N+1
) "H" CLKINT가 .
 , 18 , 가 (14) (13) (段
 數) N , (18) I N (17)가 (S)
 . , (R) (18) N+1 (17) (17) CLKINT가,
 (16) N (15) (15)
 , 가 (15) , 가 (14)
 (13) .
 , (14) (16)
 (14) , (16) CLKINT , FCLINT가
 { - (Trc+ Tdr)} , (15) , 19
 STCLKT .
 STCLKT , (20) , Tdr , 19 ,
 INTCLKT .
 , EXTCLKT INTCLKT total ,
 total .

1

$$\Delta total = \Delta msr + \Delta prp$$

1 , msr 가 (14) (13)
 , prp INTCLKT .
 , EXTCLKT (11) Trc, CLKINT가 (12)
 (Trc+Tdr), FCLINT가 (14) { - (Trc+ Tdr)}, CLKINT
 가 (16) { - (Trc+ Tdr)}, STCLKT가 (20) Tdr
 , 1 msr, prp .

2

$$\Delta msr = (Trc + Tdr) + [\tau - (Trc + Tdr)] = \tau$$

3

$$\Delta prp = Trc + [\tau - (Trc + Tdr)] + Tdr = \tau$$

, total 2, INTCLKT EXTCLKT 2, 3
EXTCLKT .

, (22), STCLKT bPT, (18)
bPMT, (12) () FCLCTLT .

, (23), (11) CLKSINT가, "H"
CLKSINT QAT I (24),
(24) QAT (11) CLKSINT가, CLK
SINT2 2 AND (25) .

, (24), CLKSINT가 "H", CLKSINT가 "L"
, "H" QAT ., AND (25) (24) QAT가 "
H" (11) CLKSINT CLKSINT2 ., (24)
QAT가 "L", (11), CLKSINT2 "L" .

가, , 가
가 ., 가
(BANK),
(Active Power Down Mode), (Non - active)
(Standby Power Down Mode) .
H" CKE가 . CKE가 "L" 가 (), "
() .

, (11) CKE, CKEIN
(11), 18, CKE

, ,
.

L" "H", (II), CLKSINT EXTCLKT, "
(11) .

, (11)가 "L" .
(11), PT가
, (12) (14),
(17) .

, (11)가, ,
(17)가, 가
, 가 .

, 18, (21) CKEIN
, (18) (17) () .

, (21) , , 가 . ,
 , (12)
 (14) 가 .
 (18) , (18)
 , 가,
 (18) (18)
 (21)가 (18)
 가 .

, (11)가 "H"
 (14) "H" 가 , (18)
 (21)가 (18)
 ,
 (12) "H" 가 , "H" 가 (18)
 ,

, 가
 , 가 가 .
 , 20 , 1
 가 , 가 (15) (1
 (14) (13) (16)
 1) , STCLKT가 가 .

, 1 , { - (Trc+ Tdr)} , 20
 (17)가 (17)가 . ,
 (17)가 , (17) 가 .
 가 ,

, (22) , 50% .
 , 18 , (22) , 50%
 .

, (22) , 20
 (17) , , (17)
 , (12)
 (22) FCLCTLT

, 가 , 가 .
 (22) 21 .
 21 , (22) .

, S1 가 , bPT가 , STCLKT가 "H" 가 .
 가 STCLKT가 "H" , S2 , STCLKT가 "L"
 bPMT , (18) .

S1 S2 , S3 FCLINT가 "H"가 , STCLKT가 "
 H" 가 . STCLKT가 "H" FCLINT
 , S4 , (18) 가 bPMT , FCL
 NT .

, S1 S4 , (18) bPMT
 .

, bPMT가 "H" , 가 (14)
 (17) , 가 "H" .

, bPMT가 "L" , 가 (16)
 (17) , 가 "L" .

, (22) bPMT가, bPT ,
 S5 , (12) FCLINT ,
 (14) .

, 22 .

(18) (17) , (11) CLKINT ,
 (21) . , (18)
 (17)가 , (16) (15) , (1
 1) (15) . ,
 (16) 가 (15) (11) CLKTINT (CLKTI
 NT2)가 STCLKT (22 STCLKTI).

(16) , { - (Trc+ Tdr)} .
 , (15) 1 . , STCLKT ,
 , STCLKT bPT
 . , 21 S1 「YES」가 . , S2
 (18) , FCLINT가 . , S3 ,
 , (22 STCLKTI). ,
 2 가 INTCLKT1 , 4

, 18 , (23) , , (
 11) (16) , ,

, (24) "H" , (24) Q

AT (24) , CKEIN , "L" , (11) CLKSTINT
 AND (25) (11) CLKSTINT (16) QAT가 "H" , 2
 (11) CLKSTINT CLKSTINT2 (16) ,
 , (23) 가 , (11) 가
 , (11) ,
 , 가 ,
 2 , ,
 , (23) , 1 CLKSTINT
 T2 , QAT가 "H" , (11) CLKSTINT CLKSTIN
 , 가 , (12) 가
 , (14) 1 (13) , (18)
 CLKSTINT2 , (17) (16) 1 (가) , (11) (12)
 , 18 , 가 , 가 ,
 , (11) , (12) (14)
 , , 가 , 가 ,
 , 가 , 가 ,
 , 가 , 가 ,
 , , 가
 1 , ; 1 ; 1

2 ; 2 , | ;
 , 1 ; 1
 , 2 .
 2 , 1 , ,
 3 ; 1 , ; 1
 ; | , 2
 2 , , 가 2
 ; 2 ;
 1 가 , 2
 가 , 가 2 1 ,
 가 , 가 2
 가 , 가
 가 , 가
 2 , 1
 ; | ;
 1 ;
 , 2 ; ,
 3 ; 1
 , 1 ; 2 3
 ; 1, 2 3 .
 4 , 3 , ,
 5 , 3 , 가
 가 .
 6 , 5 , 가,
 가 가 .
 7 , 3 , 가,
 | 1 가 ; 1

, 가 2 , ,
1 , 2 3 2 ;
4 , 1 4 2 3
4 , 3 1 1 3 ,
.

8 , 3 , ,
.

9 , 8 , 가,
, 가 ,
.

10 , 8 , ,
1 ;
.

11 , 3 , 가,
.

12 , 1 1 ; 1
1 ; | 1 1 ; 1
1 2 ; 2 1
1 ; | 1 1
; 1 1 1 , 2 ;
1 2 ; 2 3 ; 3
2 ; 2 4 ; 4 2
2 ; 2 2 2 3
; 2 3 2 4
.

,
| , 1 . , 1 , 18
(11 - 35946) .

I, (11), (12), (13)
 (14), (14)
 (15) (16), (14) (16)
 (13, 15) (17) (14)
 (16) (18),
 (11) CLKSTINT PT, bPT
 (19), (16) STCLKT INTCLKT
 (20), (18) (17) (21),
 (18) (12) (22),
 (23)가 .

, (19) , PT, bPT , FCLT
 (31) GATEBT DMY PT
 (14) DMY PT (14) DMY PT .

(22) , (19) bPT
 (18) bPMT , (16) STC
 LKT , FCLCTLT FCLCTLT
 (12) (12) .

, (23) AND (25) 2 3 . 3
 AND (25) , (11) CLKSTINT (24)
 QAT , (30) STBYAT가 , AND
 (25) AND (16) .

, 가 18 , (11)
 (12) AND (26) (1)가 , (12)
 (14) AND (27) (2)가 , (11)
 (19) AND (28) (3)가 , 3 AND (2
 6, 27, 28) PD () (29),
 (30) FCLT (31)가 .

AND (26) , (11) CLKSTINT , PD (29)
 GATEAT "H" 가 , AND (26) , , AND (28)
 가 3 , "H" , 2 "H" .

AND (27) , (12) , FCLT (31)
 GATEBT가 .

AND (28) , (11) CLKSTINT , PD (29)
 GATEAT (30) GATEAT가 .

PD (29) , CKE
 GATEAT (1) (11) CLKSTINT ,
 CKEIN () .

(30) , 가 가
 , 가
 b DOENB (1) , 가 BKOR (2) ,
 BKOR , 가 bACTV(
 2) , (12) DMOUTT , (11) CLKSTINT ,
 STBYAT (3) STBYBT (2) .

FCLT (11) (31) , PD (29) GATEAT
 CLKSTJNT , GATEBT (4) .

(12) , (11) Trc , (20) Tdr
 (Trc+ Tdr) , (11) Trc , (20)
 Tdr , INTCLKT ,
 INTCLKT 가
 (Trc+ Tdr) .

, (12) , (22) F
 CLCTLT () .

(19) , AND (28) FCLT (31) GATEBT
 , Wp PT, bPT DMY PT
 . , PT Wp (Trc+ Tdr)

2 , 1 PD (29) 2 2 NAND
 (41, 42) 1 (43) . 2 NAND (41, 42) ,
 , NAND (41)
 CKEIN , NAND (42) (11) CLKSTINT , NAND
 (41) (43) , (43) GATEAT가 .

3 , 1 (30) , NAND
 (44) (45) , 가 bACTV
 N1 .
 N1 , 가 b DOENB
 가 BKOR 3 NOR (46) .

, 2 2 NAND (47, 48) ,
 , NAND (47) NOR (46) N2 , NAND (48) (1
 2) DMOUTT . , NAND (47) (49) ,
 (49) STBYBT가 . , NAND (47) (50) ,
 (50) 2 1 (LC)
 , STBYAT가 .

, CLKSTINT (50) 2 CLKINGT b CLKINGT (51, 52) . ,

4 , 1 FCLT (31) . , 2 2 NAN
D (53, 54) , , NAND
(53) PD (29) GATEAT가 . , G
ATEAT , 2 (55, 56) 2 NAND (57) . NAND (57)
CLKSTINT . , NAND (57) NAND (54) .

, NAND (54) PDBT1 , 3 NAND (58) 1
(59) (60) , PDBT2
NAND (58) 1 . , NAND (58) , 1
(30) STBYBT가 . , NAND (58) (61)
, (61) GATEBT가 .

5 , 1 (19) . , NAND (62)
(5) (63) , 1 AND (28) (1
1) CLKSTINT (64) , NAND (65) ,
(31) GATEBT (5) (66) , 1 FCLT
N4

(N3, N4) NAND (67) , NAND (67) (68)
bPT가 , bPT가 (69) PT가

가 "L" , , CKE CKEIN
CKEIN가 "H"

, 6 .

6 a). , (11)가 , CLKSINT "H" (11)
CLKSINT "H", "L" ,
"L" 가 (11)
PD (29) , AND (26, 28) (23) AND (25)
GATEAT "L" (6 b). , (23) ,
(24) GATEAT가 , GATEAT (24) QAT "
L" . , AND (26) DMINT, AND (28) AND (25) CLKSINT
2 "L" , AND (28) "L" PT "L" (6
c, d, e).

, GATEAT FCLT (31) GATEBT가 "L"
 (6 f). , GATEBT AND (27) "L" (6 g).
 GATEBT (19) , (14)
 PT DMY PT , PT (6
 h). , DMY PT , 5 (19) (64), NAND (65)
 (66) N4 , N4가 NAND (67),
 (68 69) PT .
 PT (DMY PT) , (14) ,
 (14) GATEBT . , GATEBT (21) ,
 bRSINIT (1) "L" (6 l),
 (18) (17) .
 , GATEBT가 "L" , AND (27) FCLINT "L" .
 , AND (26, 28, 25, 27) "L" , AND
 GATEBT , (19)
 (21) (18) (14) .
 , , CKE CKEIN가 "H" ,
 , PD (29) GATEAT가 "
 H"가 (6 j). , ,
 PD (29) , (11) CLKSTINT "L"
 CATEAT "H" . GATEBT가 "H"가 , AND (26, 28) "L"
 가 , (11) (6 k, 1).
 , GATEAT가 "H" , (23)
 (24) 가 , (11) 1
 AND (25) 2 (6 m).
 , FCLT (31) , AND (26)가 (11) ,
 x가 , GATEBT "H" .
 x , 4 FCLT (31) , CATEAT
 (56) , NAND (57) CLKSTINT 가
 (59) (60) PDBT1 P
 DBT2 .
 GATEBT가 "H"가 , (21) (18) ,
 (12) DMOUTT , GATEBT가 "H"가 , ADN (27)가 ,
 FCLINT (14) .
 , (12) AND (26) ,
 (12) AND (27) , (1
 2) (6 n, , DMOUTT) ,

(14) , (14) , (18)
AND (26)가 , AND (26) "L"
(12) , AND (27)
(12) (14)
() .

(14) (6
o).

H" , x , 4 , GATEAT가 "
(14) (11) CLKSTINT
NAND (53, 54) PDBT1 "H"가 (6
(12) , AND (27) 가
p). (12) , AND (27) .
PDBT1가 "H" AND (27) , 4 (59)
(60) , PDBT2가 "H"가 (6
q). PDBT2가 "H"가 , GATEBT가 "H"가 (6 r), AND (27)가
.

() , (12) () .
() , AND (27) .
, 4 (60) , (12) ,

7 , , . DRAM ,
DRAM ,
2 (DQ) , 가 2
(CL= 2) , D
QS () 3 , 3 ,
3 , 7 | "H"
가 . "H" (7 tPDEX)

$$tPDEX = (tRECEX + tGCTL) - tREC$$

, tRECEX 1 (11)가 , tGCTL 1 AN
D (26) GATEAT PD (29)
, tREC (11) .

H" 가 , 2 " ,
가 . ,

가
가 .

(AND (26, 2
7))

STBD . ,
가 - 가 . , 가 -
가 ,
2 가 .
가 .

8 ,
EXTCLKT 가 ,
2 ,
"H" 가 .
"H" 가, (12) CLKSTINT "H"
1 AND (26)
가 .
(12)
(12)
(14) (12)가 .

3 (30) , N2 ,
가
bDOENB "H" , bDOENB "L" , B
KORf , "H" , - "L" , bACTV , BKOR
bACTV , (12) BKOR가 "H"가
OR
N2 .

가, 1 .
가 가 - 가 , 가
가 가 .

9 , 가 (b

DOENB가 "L") 가 - 가 , BKOR가 "L" (9 a), N2가 "L" (9 b). , 3 (30) , NAND (47) "H"가 , (50) (49) ST BYAT, STBYBT가 "L" (9 c, d). , (50) C LKINGT "L", bCLKINGT "H" .

STBYAT가 "L" , 1 AND (28, 25)가 , AND (28) (19) PT , AND (25) CLKSINT2 "L" (9 e, f).

8) , STBYBT가 "L" , STBYBT FCLT (31) NAND (5 "H", GATEBT가 "L" (9 g). GATE BT , 1 AND (27)가 , FCLINT가 "L" (9 h). GA TEBT , (19) , (14)) PT DMY PT 1 (9 i). , DMY PT가 (14) , 가 .

, CATEBT , (21)가 bRSINIT "L" (9 j), (18)가 () .

, AND (26) (11) CLKSTINT (12) (9 k). ,

- , 가 . bACTV가 "L" (9 l), 3 (30) NAND (44) NI "H"가 , OR (46) N2 "H"가 (9 m). bACTV , bACTV가 "L" N2가 "L"가 , BKOR 가 (9 n).

N2가 "H"가 , (14) , I AND (27) (12) DMOUTT "L" . DMOUTT (30) NAND (48) , DMOUTT가 "L" (30) STBYBT가 "H"가 (9 o), FCLT (31) GATEBT가 "H"가 (9 p). GATEBT 가 "H"가 , AND (27)가 (9 q). , GATEBT (21) (18) , (18) (9 r).

, AND (28, 25) , AND (27) , (11) CLKSTINT "L" (9 s). AND (28, 25) , AND (27) (11) CLKSTINT "H" , 가

(11) (16) 가 . , 18 가

1) , CLKSTINT "L" (11) (16) (9 t), (1

, DRAM ,

가 . , 가 BKOR

가 . ,

, (bDOENB가 "H") , 가 - 가 (BKOR가 "L") BKOR가 "L" , bDOENB가 "H" , 3 N2가 "H"

bDOENB가 "L" , N2가 "L" STBD , STBD 가 . ,

-

가 가 , , 2 "H" (12) (12)

I (12) , (12) .

, 10 ,

(12) 가 , , (12)

, 가 , 2

가 , 가 가 . 4

, 1

, STBD

(19), (21) (22)가 , SA

D (Synchronous Adjustable Delay) 가 . , SAD

AND (26) AND (27) FCLT

AND 가 , PD (29), (30)

(31) 가 .

2 . 11 , . DRAM

, 12 , . DRAM , EXTCLKT
 , EXTCLKT
 가 . 128M DRAM , 1
 2
 EXTCLKT EXTCLKC ,
 2 2 .
 , EXTCLKT INTCLKT INTCLKT EXTCLKT , EXT EXT
 CLKT INTCLKC EXTCLKT EXTCLKC
 , 11 DRAM , INTCL
 KT, INTCLKC , 1 가 2 , PD
 , 2 1 . 2 (共用)
 , I1 , PD
 EXTCLKT INTCLKT T T
 「T」 , EXTCLKC INTCLKC C
 , C 「C」 .
 T C PD (101) ,
 CKE (11) CLKSTINT, CLKSTINC CKEIN () , T
 C GATEAT GATEA
 C .
 가 , T C (102) , 가
 b DOENB , 가 BKO
 R , BKOR
 bACTV , T C
 (11) (12) DMOUTT DMOUTC , T C
 CLKSTINT CLKSTINC , T C STBYAT, STBY
 AC STBYBT, STBYBC .
 13 , PD (101) 2
 PD (29) 가 , 2 2 NAND (41, 42) 1 (43)가
 , 2 2 NAND (81, 82) 1 (83)가 .
 NAND (41, 42) (43) , CKEIN CLKSTINT ,
 T GATEAT , 가 NAND (81, 82) (83)
 , GATEAT CLKSTINC , C GATEA
 C .
 14 , (102) 3
 OR (46), (50), (30) 가 , NAND (44, 47, 48), (45, 49, 51, 52),
 (LC)가 , NAND (84, 85), (86, 88, 8

9), (87) 2 1 (LC)
(LC2)가 .

NAND (44, 47, 48), (45, 49, 51, 52), OR (46), (50) (LC)
, bACTV, BKOR, bDOEB, DMOUTT, CLKSTINT T ST
BYAT, STBYBT . 가 NAND (84, 85), (86, 88, 89), (87)
(LC2) STBYAT DNIOUTC C
STBYAC, STBYBC .

15 , C FCLT (31C) , 4
FCLT (31) 가 , NAND (53, 54, 57, 58) , (55, 56, 59, 61)가
NT . , 4 GATEAT GATEAC가, CLKSTI
CLKSTINC가, STBYBT STBYBTC가 ,
GATEBT GATEBC가 .

, T FCLT (31T) , 4 FCLT (31) .
, T EXTCLKT INTCLKT
C STBD EXTCLK INTCLKC 1 STBD 가 . ,

EXTCLKT 가 EXTCLKT "H" ,
EXTCLKT "H" 가 .
, C EXTCLK INTCLKC ,
, T EXTCLKT INTCLKT .

, C , 16
AT "L" . PD (I01) , (16 a), GATE
, AND (26C, 25C) DMINC, CLKSTINC "L"가 , AND (26C, 28C, 25C)가
(19C) PT "L" (16 c, d, e). , AND (28C)

, GATEAC , FCLT (31C) GATEBC "L" (16 f).
GATEBC AND (27C)가 , CFCLINC "L" (16 g).

, CATEBC (19C) , (I4C)
() PT DMY PT 1 (16 h), (14C)

i), GATEBC (18C) (21C) bRSINIC "L" (16

(16 j) , PD
 (101) , CLKSTINT가 "L" GATEAT "H" (16 k). CLK
 STINT "L" , CLKSTINC "H" (16 l). , GATEAC ,
 GATEAT 가 , CLKSTINC가 "L" , GATE
 AT "H" "H"가 (16 m).

"H" GATEAC AND (26C, 28C) , (11) CLKSTINC
 (16 n, o). , GATEAC가 "H" (23C)
 (24C) 1 CLKSTINC QAC가 "H" , AND (25C)가
 , (11) CLKSTINC가 CLKSTINC2 (16 p).

, FCLT (31C) , AND (26C)가 (11) ,
 x가 , (12C) DMOUTC "L"
 , GATEBC "H" . GATEBC , (21C)
 (18C) , (16 q).

C STBD .

가 - 가 , 가
 17 .

, 가 (bDOENB가 "L") 가 - 가
 , BKOR가 "L"가 (17 a), N2가 "L"가 (17 b). ,
 (102) , NAND (47) "H"가 ,
 (50) (49) STBYAT, STBYBT가 "L"가 (17 c).

, "L" STBYBT , (102) STBYAC,
 STBYBC가 "L" (17 d, e). STBYAC가 "L"가 , AND (28C, 25
 C)가 , AND (28C) (19C) PT , AND (25C)
 CLKSINC2 "L"가 (17 f, g).

, STBYBC가 "L" , STBYBC FCLT (31C) NAND (5
 8C) "H", GATEBC가 "L"가 (17 h). C
 ATEBC , AND (27C)가 , FCLIN "L" (17 i). , GATEBC
 , (19C) , (14C)
 PT DMYPC 1 (17 j). ,
 DMYPC가 , (14C) ,
 가 .

, GATEBC , (21C)가 bRSINIC "L"
 (17 k), (18C)가 () .

C) , CLKSTINC , AND (26C) (11)

(12) .

TV가 "H"가 (17 1), (30C) NAND (44C) bAC
가 , OR (46C) N2 "H"가 (17 m). N1 "H"

N2가 "H"가 , (14C) , AND (27C)

(12C) DMOUTC가 "L" . DMOUTC
(30C) NAND (48C) , DMOUTC가 "L"
(30T) STBYBT가 "H"가 (17 n). ,
(11T) CLKSTINT "L"가 , (30T)
STBYAT가 "H"가 (17 o). STBYAT가 "H" , (12T) DMOUTT
"L" , (12C) DMOUTC "H" (17 p).
, T STBYAT , 14 NAND (84, 85), (86) (87)
, T STBYBT 가 DMOUTC가 "L" , C STBYBC ,
STBYBT "H"가 (17 q).

"H" STBYBC , FCLT (31C) GATEBC "

H"가 (17 r). , GATEBC가 "H"가 , AND (27C)가 (17
s). , GATEBC , (21C) (18C) (18C)
(18C) (17 t).

, STBYBC가 "H" , (11C) CLKSTINC "L"가 ,
STBYAC가 "H" (17 u).

, C STBD .

, , C T

, T .

(57)

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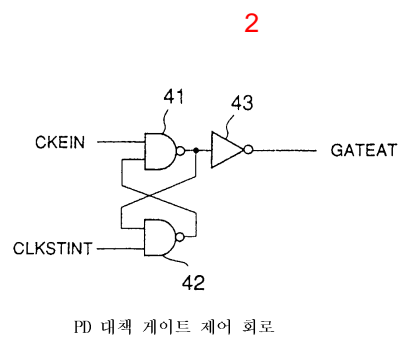
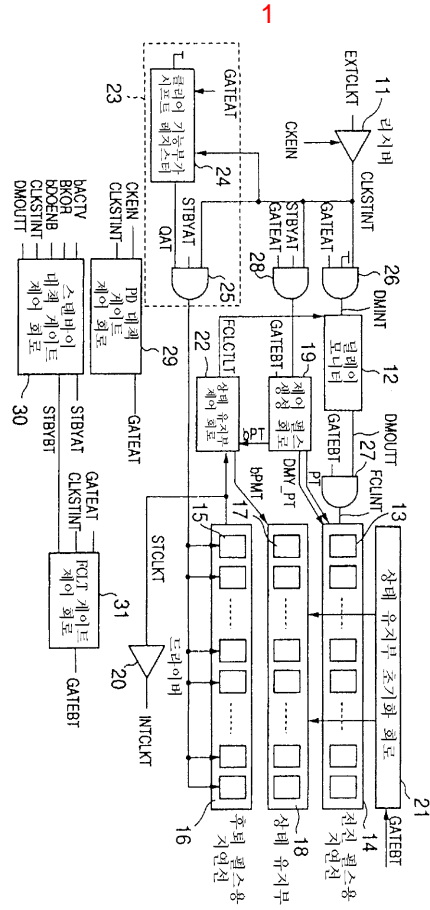
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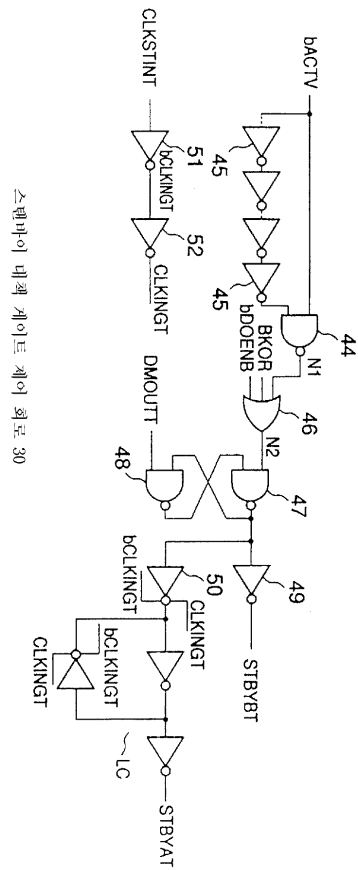
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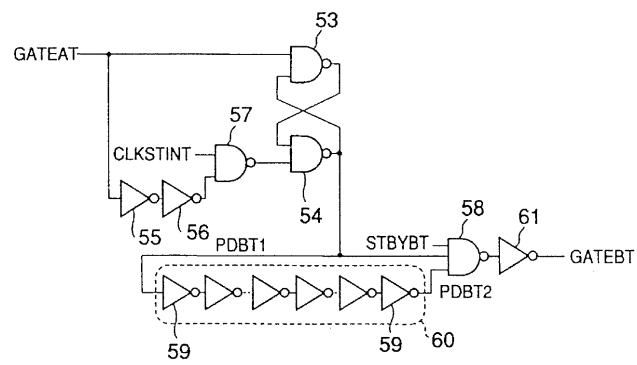


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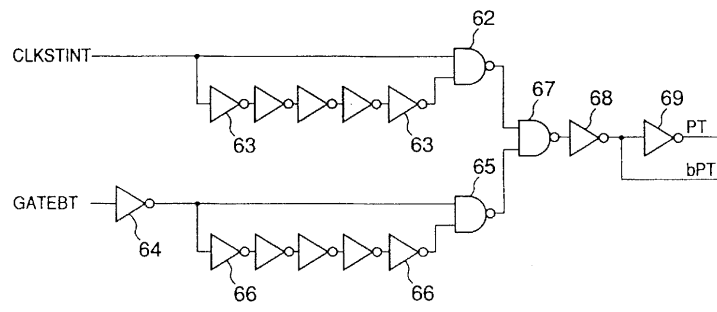
스텐바이 대역 게이트 제어 회로 30

4



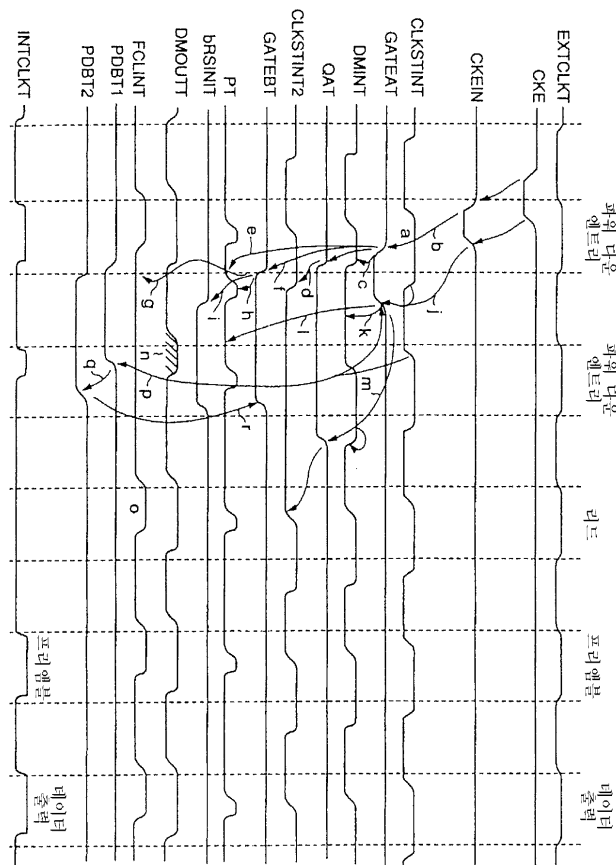
FCLT 게이트 제어 회로 31

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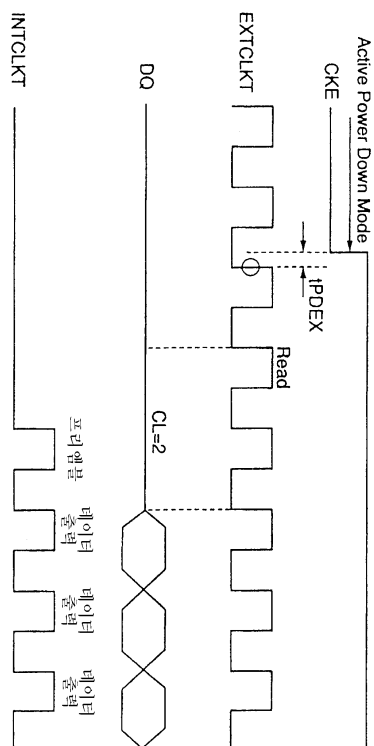


제어 펄스 생성 회로

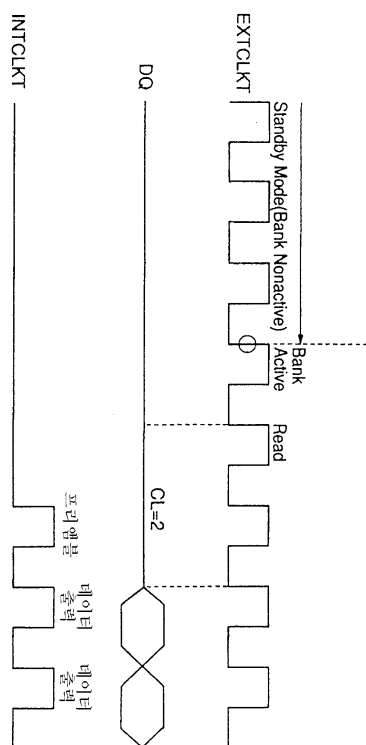
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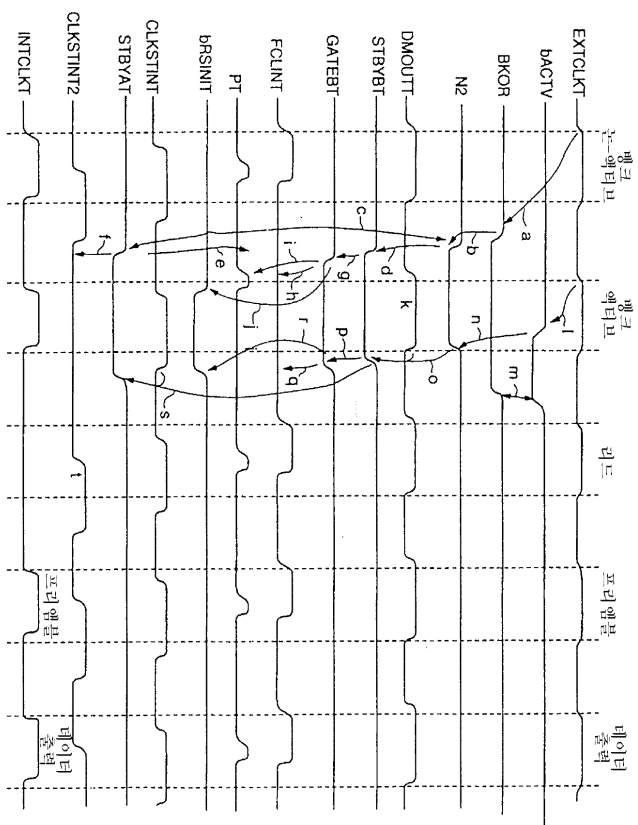
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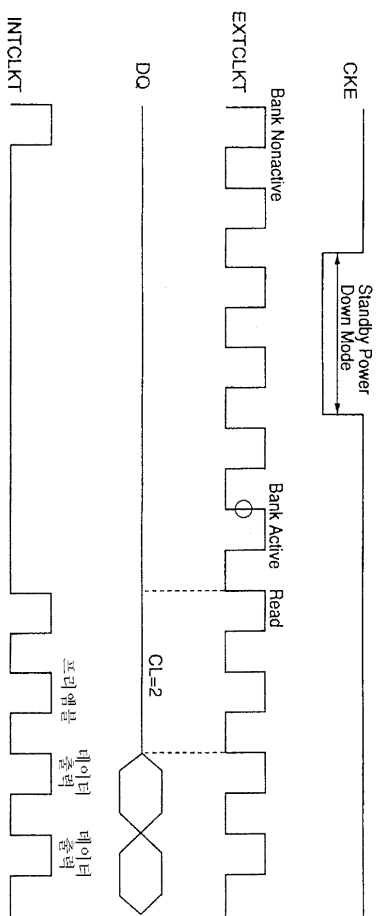
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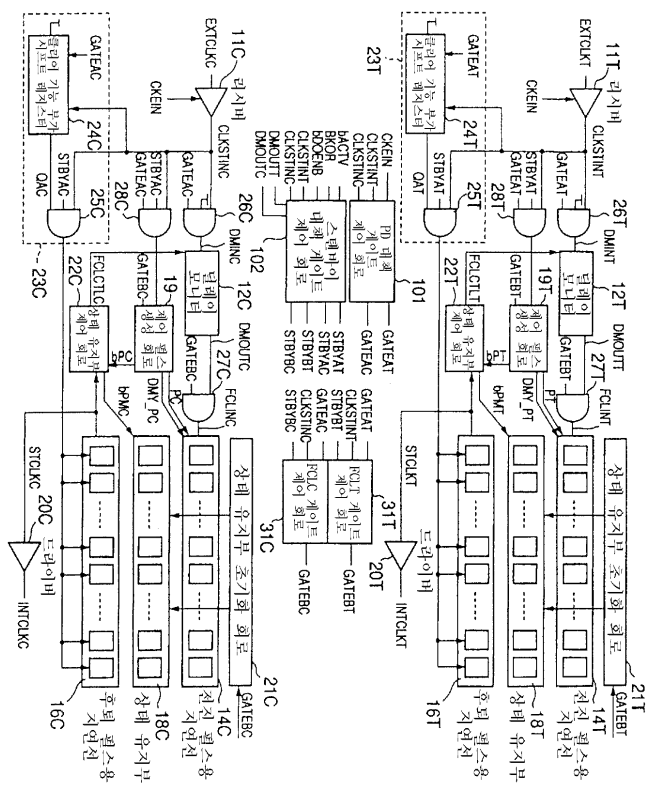
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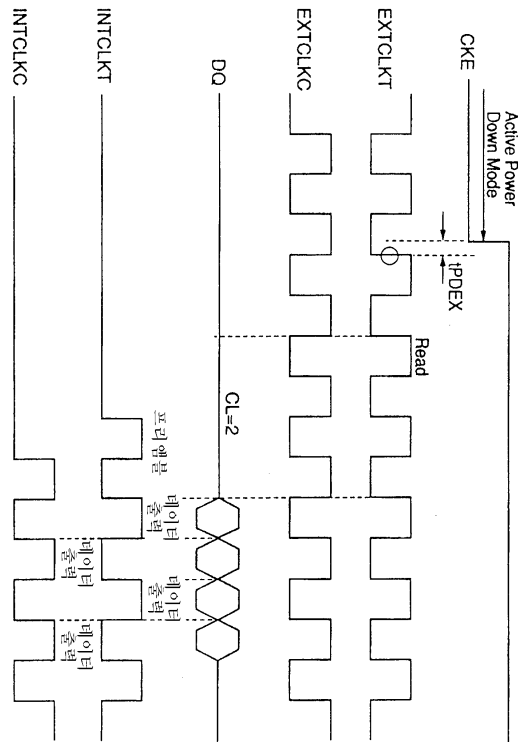
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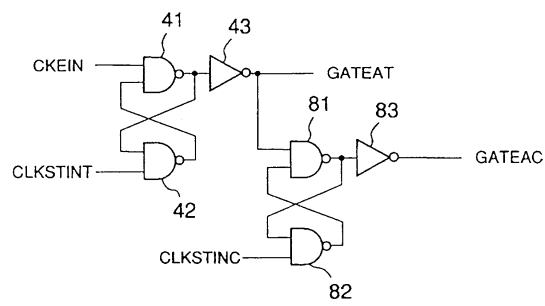
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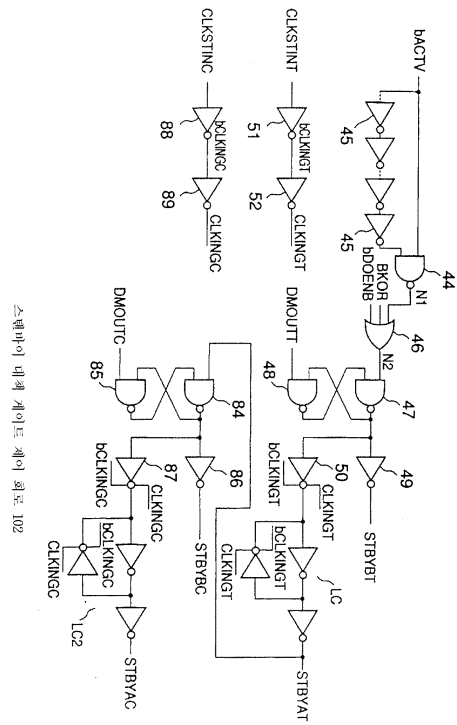


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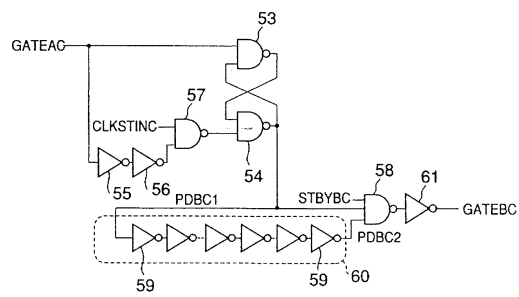
PD 모드 게이트 제어 회로 101

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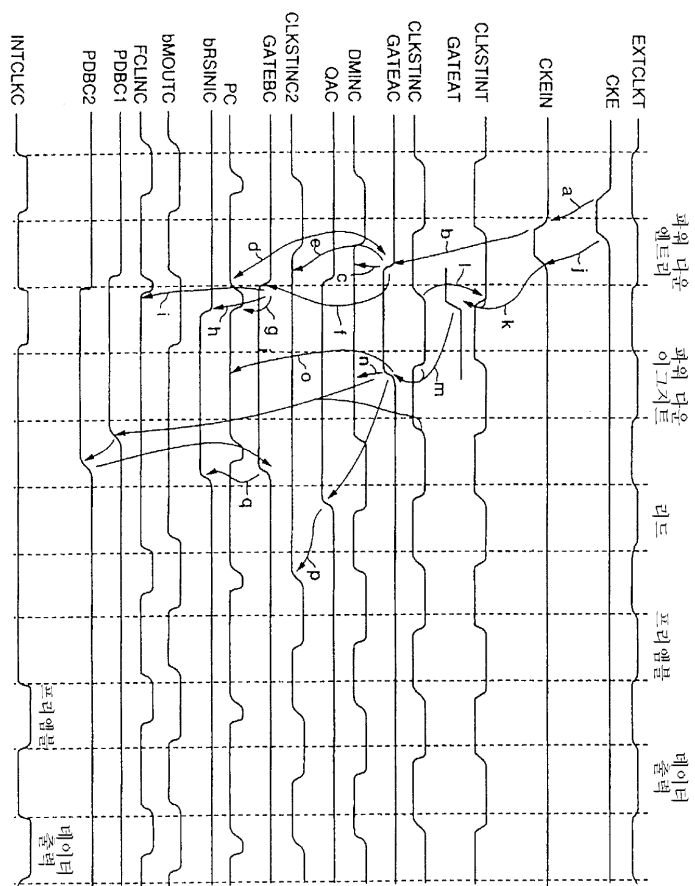


스택마이 테 세 게이트 세이 외 로 102

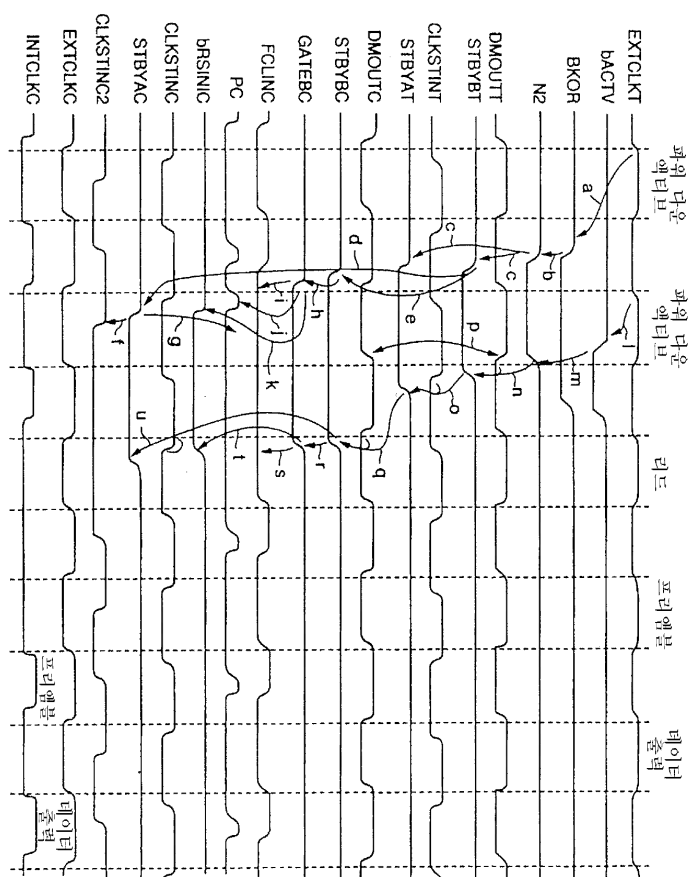
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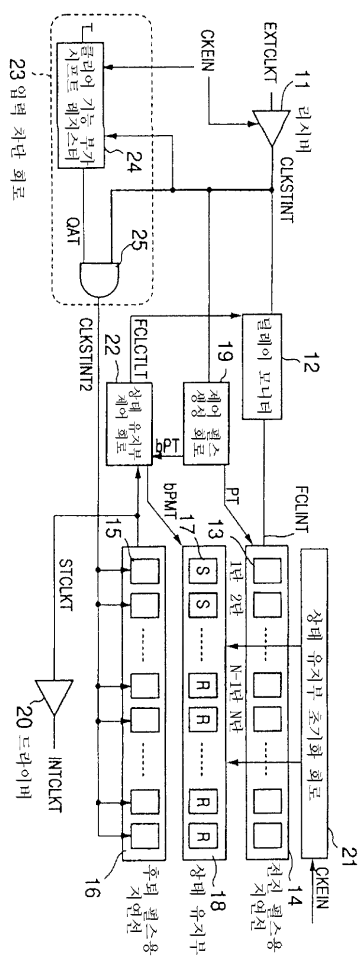
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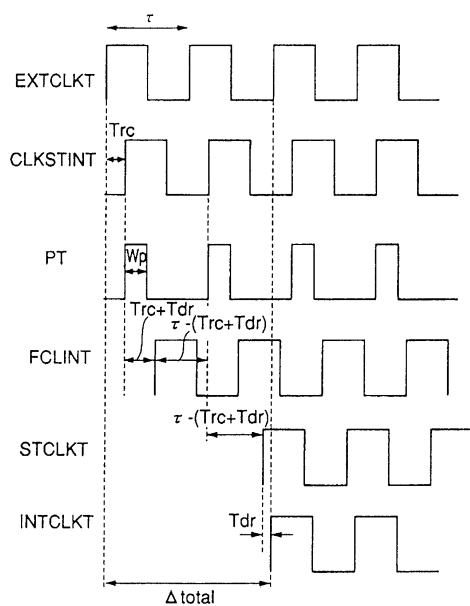
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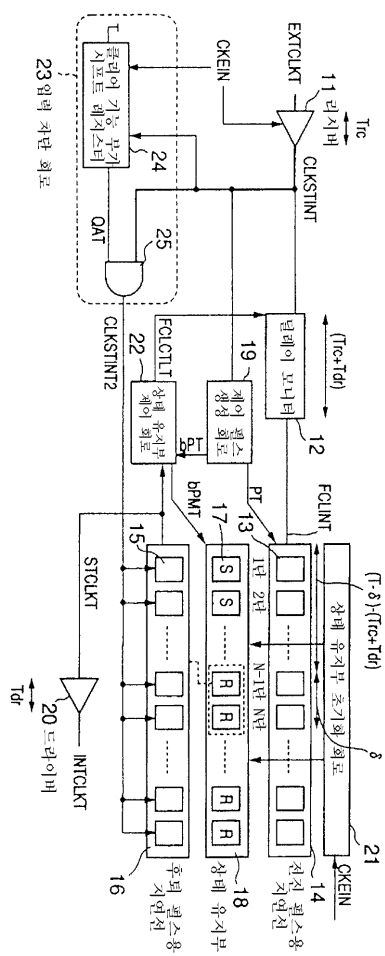
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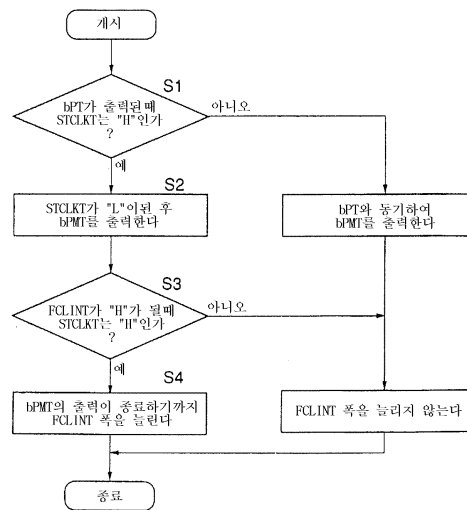
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