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(43)

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(22) 2004 06 22

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## 가 가

(72) 3 1-17 가 가

3 1-17 가 가

(74)

1

(54) 가 가

1 CLKD10	10	, DLL CLKD1	(8) CLKD10	, VCO(7) CLKS	. .	(9) (3)	10 (9)	CLKO CLKS	, CLKD CLKC 가가

1 1  
2 1 DLL  
3 1 DLL  
4 1  
5 (a), (b)  
6 2  
7 3  
8 7 VCO  
9 7 VCO

1 :

2, 21, 31 : PLL

3, 14, 24, 44 :

4, 32 : PFD

5, 33 : CP

6, 34 : LPF

7, 35 : VCO

8, 22 : DLL

9, 23 :

10, 36 :

11, 13, 41, 43 :

12 :

42 :

(SSCG: Spread Spectrum Clock Generator)  
, EMI(Electro Magnetic Interference: ) 가

PLL(Phase Locked Loop: )  
PLL , PLL

, ROM(Read Only Memory)  
가 ( , 6,377,646 ).

, PLL  
( , 6,292,507 ).

가 , 가

가 가

가

가 가

가 가

1 , 1 , 1 , 1  
2 1 , 2 , 1 , 2  
2 2 , 2 , 1 , 1  
1 , 1 , 1 , 1

2 , 1 , 1

가 가

1

1 , 1 (1), PLL (2) (3)

PLL (2) (PFD)(4), (CP)(5), (LPF)(6), VCO( ) (7), DL  
 L( ) (8), (9) (10) . PLL (2)  
 가 .

2 , , DLL (8) 10 (11), 10 (12), 10 (13), (14)

10	(12)	, VCO(7)	(11)	CLKO	(12)	VCC
	(12)					
GND		(13)			(12)	(11, 13)
		(12)		CLKD1	CLKD10	

10 (14) VCO(7) , 가 CLKO , CLKO 1 (12) (11, 13) CLKD

3 1 DLL (8) (9) . 3 , C  
 LKO VCO(7) , CLKD1 CLKD10 DLL (8)  
 . CLKS1 CLKS2 (9)

CLKO	T1	.	(12)	CLKD1
CLKO	T2	CLKD2	T2	T1 10
(12)	CLKD3	CLKD10	CLKD1	T2
가 ,	CLKO	T1	.	,
CLKD10				

KS (9) DLL (8) CLKD1 CLKD10 CL  
KS . (9) (3) .

CLKS1 (9)가 (9) . , t0 CLKD10 t5 CLKD9  
 CLKD10 가



(1) /

CLKO

(10)

DLL (8) (9) , ,

1

5 (a), (b) N , 5 (b) 가 5 (a) CLKO

N 50 CLKI 200MHz, CLKO CLKO M 50 200MHz 가 196MHz(

N 49 : -2%) 가

T4 N 5 (a) T4 CLKR T3 250ns (T4/T3) N 50

N 5 (b) CLKO 가 200MHz CLKR T3 50 49

N 49 : -2% : -2%)

T4 가 40μs CLKO 가 (T4/T3)=160 가 T4(

20μs) 가 CLKO 가 (T4/T3)=80

M 20 CLKI 200MHz, CLKO 가 200MHz 190MHz

CLKR T3 N 20 CLKR T3 100ns 가 200MHz 190MHz

( : -5%) : -2%)

N 20 CLKO 가 (T4/T3)=200 ( : -2%)

N 20 N 20

N 19 N 19 가 CLKO

/

1 4 CLKO T1 1/10 CLKC (9) 가

10 (10) N 1 T1 1/10 CLKC

CLKC (10) M, N 50 (1) CLKI 200MHz, (1) CLKR

T3 250ns CLKC CLKO 199.6MHz T1 1/10 (10) 10

(9) 가 : -0.2%) CLKO 가 CLKO

(10) M, N 5 (1) CLKI 200MHz, (1) CLKR

25ns CLKC CLKO 196MHz T1 1/10 (9) 가 (10) (1) CLKR T3

-2%)	CLKO가 가 (T4/T3)=800 10	CLKO가 가 10 CLKO	T4가 20 $\mu$ s 가 10 가	(4) (4)	(4) 가 10 가
, 12)	DLL 가 CLKO 2	(8) 가 CLKO DLL (8), (9)	(12) 가 10 가 (3)	, ,	, DLL (12) (8)
가 2					
6 (23)	2 (24)			(1), PLL (21), DLL (22),	
PLL PLL	(21) (21)	, 1	PLL (4), (2)	(5), (6), VCO(7) (3), DLL (8)	(10) (9)가
PLL CLKC	(10) (21)	VCO(7) 가	(1)	CLKO N CLKR	CLKC
DLL CLKD11 KI	(22) CLKI 1/10	2 , 3	DLL (8) DLL (8)	10 CLKD11 CLKD20 CLKD1 CLKD10	
CLKS 3)	(23) CLKS (24)	DLL (22) CLKS (23)	CLKD11 CLKD20 CLKR CLKI 1/10 CLKO		(1) (2)
, 1) 가	DLL (22) CLKO	10 가 가 10 가	, , , , , DLL (22) , PLL (2)		CLKR
가 3	2 DLL (22), CLKO	(23) (24)	(24) (24)	, ,	가
7 DLL	3 (22)가 PLL (31)			, , 6	
PLL 가	(31) PLL (31)	(32), , CLKV1	(33), CLKI (23)	(34), VCO(35) PLL (31)	(36) CLKC
8 5	VCO(35) (41), 5		(42), 5	(43), (44)	
5 (42)	(42)		(41)	(42)	VCC

(57)

1.

2.

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가,

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3.

4.

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가,

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5.

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6.

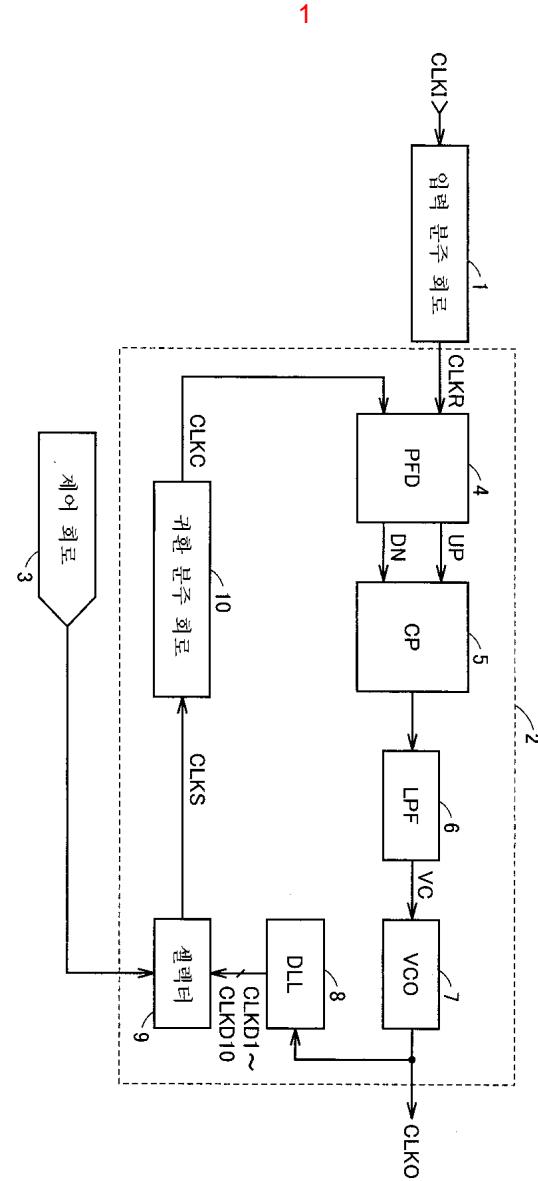
5

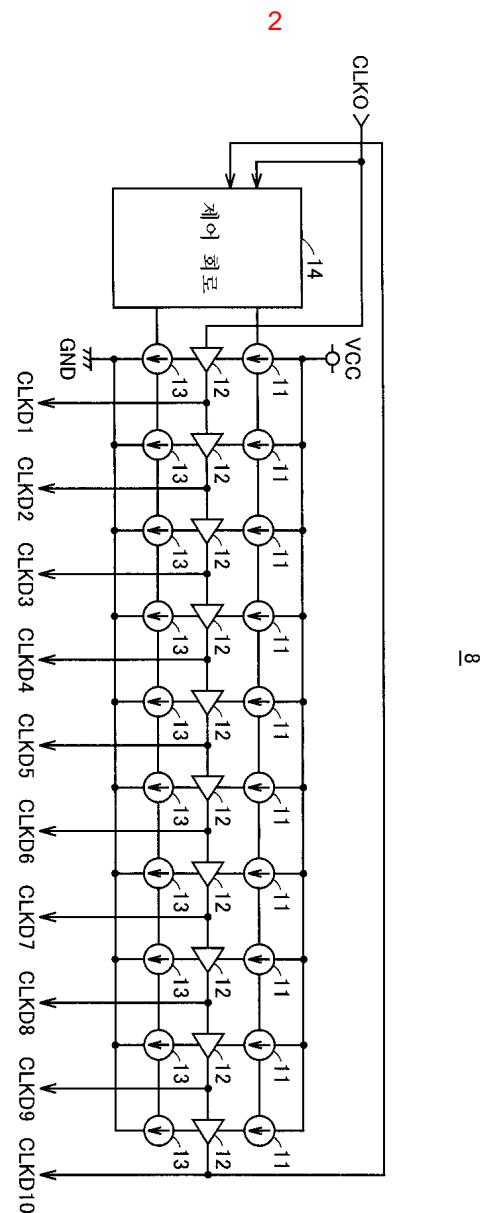
,

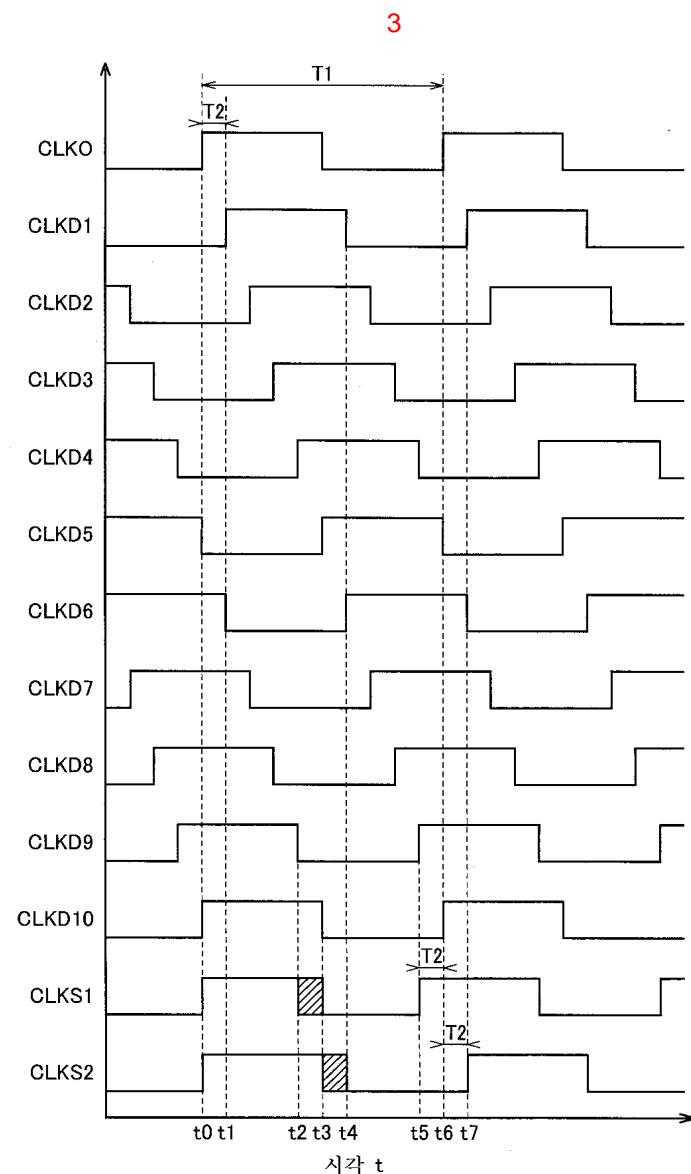
,

,

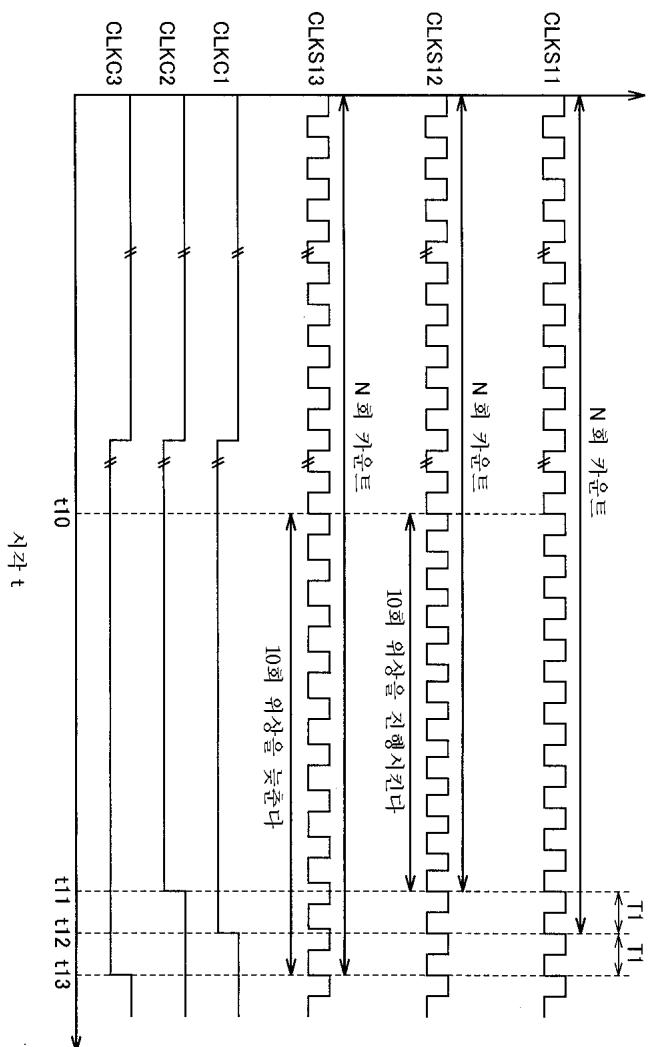
가





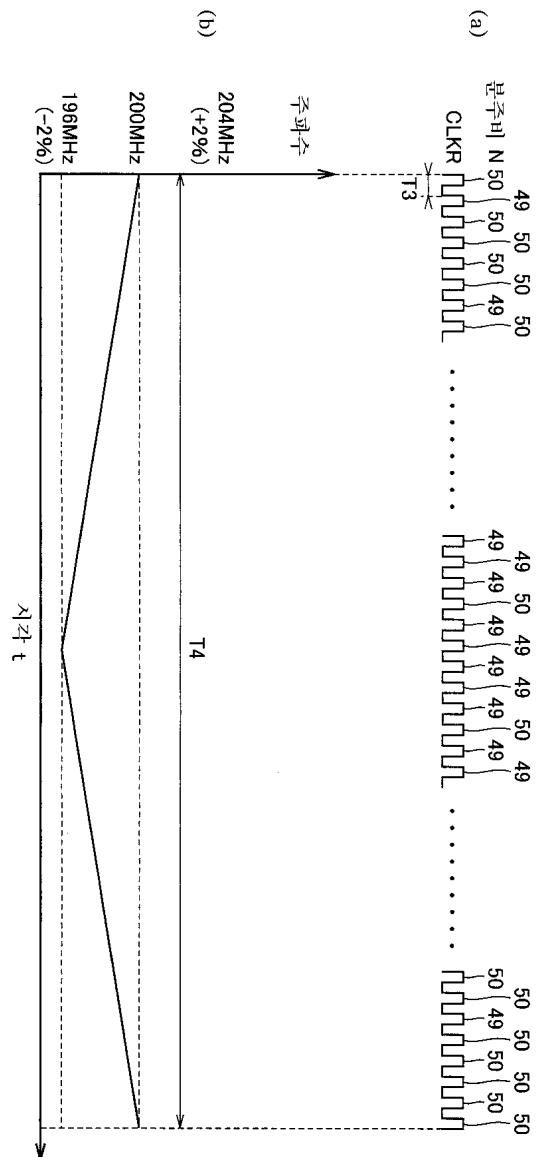


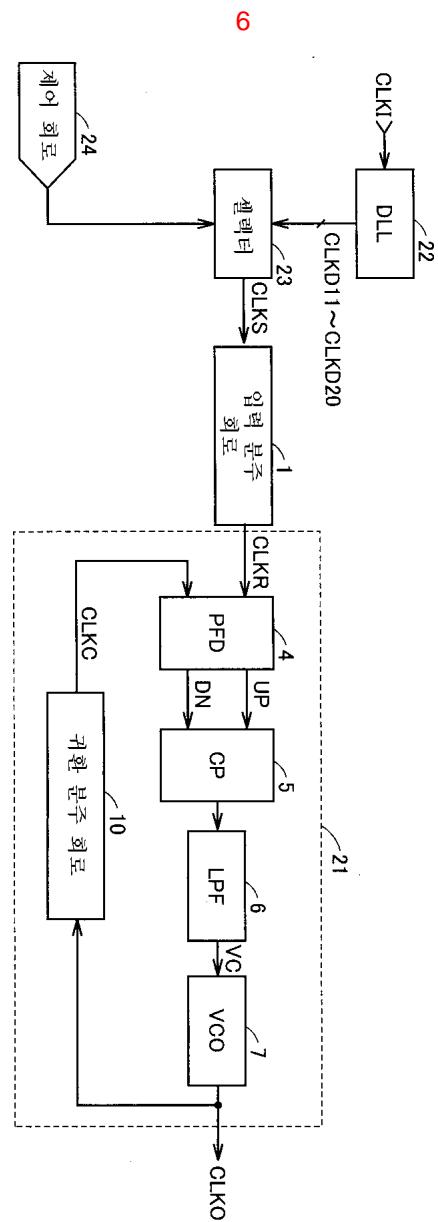
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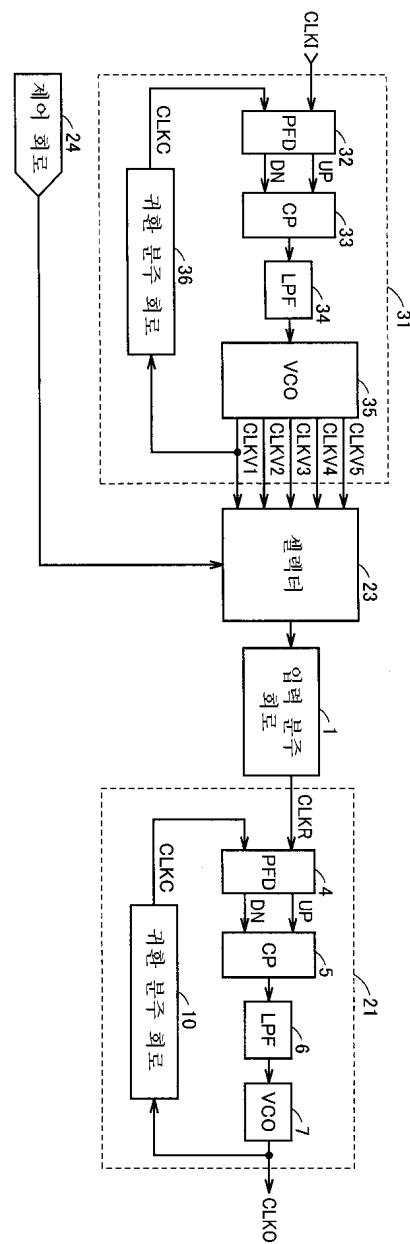
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### (종래 기술)





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