

(19) (KR)  
 (12) (A)

(51) Int. Cl.<sup>7</sup>  
 H04N 7/12

(11)  
 (43)

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(30)	JP-P-2001-00227418	2001 07 27	(JP)
	JP-P-2002-00013902	2002 01 23	(JP)

(71)	가	가	
	가		1006

(72)		3-9-25	2-101
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1-6-19

1-9-5-103

가		
	가	3 8-4

가 34-21

(74)

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(54)	,	,	,
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1	2	.	1	.	1
	,		2		1
가					
1	PCR		PCR		2
	PCR	2			PCR
,					

, 1 2 , , , ,

1  
2 2

, 가 (1)  
, (2) 가 , ,  
, BML(Broadcasting Markup Language; )

가 ISO/IEC13818 2 - ) MPEG2-TS(Moving Picture Experts Group 2-Transport Stream;  
, DV  
, ISO/IEC13818 64 MPEG2 ( )  
PES(Packetized Elementary Streams; )

PES PES DTS(Decoding  
Time Stamp; ) 가 DTS PCR PCR  
PCR(Program Clock Reference;  
)

PCR 90kHz '0' '2<sup>33</sup> - 1'  
, PCR DTS , 가

PES 188 TS

, (key station) , (main broadcasting station)

, 가 가 ,

(local station)

PCR PCR PCR PCR  
S , , , PCR  
PCR , PCR  
DTS , DTS 가 PE  
PCR , PCR  
PES

PCR

PES

가  
가

1                  2                  ,                  1  
 ,                  가                  ,                  2  
 1                  ,                  1                  ,                  1  
 ,                  1                  ,                  1  
 1                  ,                  1                  ,                  1  
 ,                  1                  ,                  1  
 2                  ,                  2                  ,                  2  
 ,                  2                  ,                  2  
 2                  ,                  2                  ,                  2  
 ,                  (b)                  2                  ,                  (a)  
 2                  ,                  2                  ,                  2

2 , 1 1 1 , 2 2 1  
2 1 . 1 2 2  
2 , 1 가 . , 2 가 ,  
1 2 , 2 .

, 1 1 가 , 1

A musical score for two players, numbered 1 and 2. The score consists of five systems of music, each starting with a comma (,) and ending with a period (.). The lyrics are written in Korean characters (가) and numbers (1, 2). The music includes various rhythmic values such as eighth and sixteenth notes, rests, and ties. The score is annotated with several markings:

- (a)**: Located at the end of the third system.
- (b)**: Located at the end of the fourth system.

( ) 1 , 0 1 2 , ( ) 1 '0' 1 가  
 1 , 1 2 , 1 2 , 1 1 2 2 1  
 , 2 , 2 , 1 2 , 1 3 2 3 2 , 1  
 , 2 , (a) 3 2 , (b) 2 .  
 2

, 가 , .  
 , 1 1 2  
 , 1 , 1 1  
 1 , 1 1 1  
 1 3 1 가 , 1 1 1  
 , (b) 2 , 2 2  
 2 , 1 2  
 가 , 2 1 , 2 , 1 2  
 , 2 1 , 1 2 , 1 2

(old)

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

, 가 , 가

, 1 1 1  
가 1 1 1  
가 2 2 , 1

2 , 1 2

, 1 , , ,

, 1 1 1 , , 1  
가 1 1 1 , 1  
가 2 2 , 1 2

, , , , ,

, 1 1 1 , 1  
1 1 1 , 1  
가 1 2 2 , 1 2

, , , , ,

, 1 1 1 , 1  
가 1 1 1 , 1  
가 1 2 2 , 1 2

, , , , ,

1 1

2 1

3 1 PES

4

5		1	
6		2	PES
7			
8		2	
9	1		
10	2		
11	2		
12	1	(10)	(14)
13	2		
14	3		
15	3		
16	3		
17	4		
18	4		
19	4		
20	5		
21	5	(0)	
22	5		
23	6		

1 6 . , ISO/IEC13818  
MPEG2-TS 가 . ,  
1 2 ,

$$\begin{array}{ccccccccc} \hline & & & & & & & & \\ & 1 & & & & & & & \\ & (20) & 1 & . & 1 & (1) & . & (1) & 1 \\ & 2 & (20) & . & 1 & (10) & . & (10) & 2 \\ \hline \end{array}$$

20) 가	2	(20)	.	,	1	(10)	2	(
ROM	(1)	CPU, ROM, RAM,	,	,	,	,	CPU 가	)
1 (15)	(10)	(11),	(12), PCR	(13),	(14)			
	(11) (a)	(b)		(20)	(21)	, DV		(12)
TS	(12) (a)	PES DTS	PCR	MPEG2	,	(c)	PES	, (b)
PCR R	(13) 90kHz	(12)		(14)	'0'	'2 <sup>33</sup> - 1'	PCR	PC
가	,	BML		,	,	,	(a)	가
TS	(13)	STCR(System Time Clock Reference; PCR 가	,	STCR PCR	)	STCR	PCR	
		DSM-CC(Digital Storage Media Command and Control; (15))	,	TS 2	(20)	TS		)
	(15)	(12)	.	(14)	TS	TS		
2 (24)	.	2	.	(21), PCR	(22),			(23)
PCR )	(21) 1	(10)	(12)					
	(22), PCR	1 (22)	(10) PCR	(13)			, PCR	(13)
	(24)	(21)	.	(23)	TS			
CR	PCR	.	(23)		(14)			P
2	.	(23)	.	(201),	(202),	PCR	(23) CPU	(204)
CPU	(205)	,					(203), PCR	
	2	6						
	(201) 1	(10)	.	(14)				
	(201)		.	(202)				

(202) (201) PCR PCR PCR (203)  
 (202) (203) PCR PCR PCR (203) (203)  
 d0 PCR 가 CR (204) . . . . . . PCR P  
 PCR (204) PCR PCR (203) PCR  
 . . . . . . (24)  
1  
 3 1 (10) TS (12) . . PES PES PES  
 PES / . . (300) PES DTS PCR  
 . . 3 , , PES(301, 302, 303) PES  
 . .  
 4 1 (10) (14) (section)  
 (400) TS . .  
 (401) PCR = 100 NPT = 0 . . NPT(Normal Pla  
 y Time; ) PCR , ,  
 (402) , NPT = 200 . .  
 5 1 (10) (15) . . PES (500) TS  
 , PES (500) 1 (10) , , ,  
 5  
 PCR PES PES  
 , , , ,  
 PCR PES  
 1 (10) 2 (20) . .  
 1 (10) (21) TS . .  
 6 PES PCR 2 (20) PCR . .  
 (12) PES(601, 602, 603) . .  
 1500  
 1 (10) 2 (20) (23)  
 , (701) 7 TS . .  
 1500 , , , 7 100  
 8 2 (20) (24) (800)  
 (800) 2 (20) PCR (20) PCR (22)

PCR		PES	
<u>1</u>			
1 . . . . .		(23)	
9 . . . . .			
1 . . . . .			
, 2 . . . . .		(23)	
(202) . . . . .		(202)가 S1 PCR 'Yes' PCR ), (201) PCR (203)	
X 가 d0 PCR (13) . . . . .		(202)가 d0 가 , 'X mod 2 <sup>33</sup> ' PCR (204) PCR (22) PCR (modular multiplication) (204) PCR (203)	
d0 가 PCR S2가 , . . . . .		PCR (204) S1 PCR (203) PCR (203) PCR (203) PCR (203) (S2).	
, 2 . . . . .		(23)	
0 가 . . . . .		(202) PCR (203) PCR (=100)	
00 mod 2 <sup>33</sup> . . . . .		PCR (203) PCR (203) PCR (203) PCR (203) PCR (203) PCR (203) (401) (203) d '16	
d0 = 1500 . . . . .		d0 + 100 = 1600	
, PCR (204) . . . . .		'200' (401)	
, . . . . .		(202)가 4 PCR PCR (203) PCR (203) '1600'	
( 2 ) . . . . .			
2 . . . . .		1 . . . . .	
2 . . . . .		1 . . . . .	
가 . . . . .		가 . . . . .	
, 1 . . . . .		(a) . . . . .	
(c) . . . . .		5 . . . . .	
2 . . . . .		1 . . . . .	
PCR . . . . .		1 . . . . .	
PCR 2 . . . . .		d0 . . . . .	
PCR 2 . . . . .		PCR 2 . . . . .	
1 . . . . .		PCR 2 . . . . .	
PCR d1 . . . . .		PCR 2 . . . . .	
d1 . . . . .		PCR 2 . . . . .	
, . . . . .		PCR 2 . . . . .	
, . . . . .		PCR 2 . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .		d0 . . . . .	
, . . . . .		PCR . . . . .	
, . . . . .</td			

2

3

3 (43)  
 . 16 3 가 5  
 . 15 (43) PCR (1504)가 (1504)  
 04) S21 'Yes' ), PCR (1504) PCR (1505)가 5 PCR  
 . , PCR , PCR (1504) S22 1/90000 '1' 가 PCR  
 . , MPEG2 PCR (1503) PCR '100' PCR (1505)가 PCR  
 . 가 90000 × 5 = 450000 PCR 100 + 450000 = 450  
 100

(1504)가 (S21 'No'),  
 S25

(1502)가 NPT = 0 (S23 'Yes'),  
 S24 P2 '0' NPT PCR (1505)가 'P3 - P2'  
 . PCR (1506) PCR (1506) PCR (S24).  
 NPT PCR PCR PCR

d가 S25 (S25 'Yes'), S26 S21  
 d가 S25 (S25 'No'), S26 S21

S26 (1502)가 (S26 'Yes'), S2 P  
 CR , PCR (1505)가 (1506) PCR (1506) PCR

PCR      PCR      (      S27).      ,      S21

S26    ,    (1502)가  
S21

( 4      )

4      4      1      5      1      (a)      가      , (b)  
가      , (c)

4      PCR      PCR      2      2      1      PCR  
PCR      PCR, ( )      PCR, ( )      PCR      PCR  
d2      ,      PCR, ( )      d2,      ( )

4      PCR      PCR

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4

17      PCR      (4)      2      (50)      ,      PCR      (53)가      PCR      (13)  
1      PCR      PCR      (1801)      PCR      (1803)      (13)      .      PCR      (52)      PCR  
(1)      .

18      (53)

PCR      PCR      (1801)      PCR      (1803)      (13)      .      PCR      (1801)  
PCR      PCR      (1802)      PCR      (1803)      (52)      .      PCR      (1802)

1805      (1805)      PCR      (1801)      .      PCR      PCR      (1803)      .  
(1805)      .      .      .      .      .

)      'a'      PCR      (1803)      (a) ( )      PCR      PCR      (1801)  
)      d2      PCR, ( )      PCR, ( )      d2      PCR  
'b'      PCR, ( )      d2,      ( )      .      , (b) ( )      (1805)  
PCR      (1806)      .      .      .      .      .      PCR

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4

4      19      4      (53)

1      18      ,      'Yes'      ),      PCR      S32      (53)      ,      PCR  
4      ,      PCR      (52)      (1803)가      'P5 - P4 - a'  
d2      PCR  
(      S33).      ,      S34

PCR(P4)      (1801)가      (1803)가      (a) P4      (b) PCR      (1801)가 P  
PCR(P5)      ( ) S32.      d2      ,      'a'

(      S3      S33      'a'

PCR (1801)가 PCR(P4) (S31 'No'), S34  
 34, d2가 (S34 'Yes'), S35 S31 .  
 S35, (1805)가 (S34 'No'), S35 PCR (1803)가 (1805) PCR(P6)  
 'Yes', 'P6 + d2 + b' S36, 'd2', PCR 'X mod 2<sup>33</sup>', 'b' PCR (1806) PCR  
 가 PCR (S36). , PCR (1806), PCR (1806) X (1806)  
 ) PCR . PCR . PCR .  
 S35, (1805)가 (S31) .  
 00, 1100) (53) PCR , (13) 100 (53)가 PCR 'a' (52) 1600 - 100 - 100  
 = 1400 PCR , (1805)가 100 PCR(P6) 'P6 + d2 + b' 1000 + 1400 + 1100 = 3500 (1803) (1  
 805) P6 (1803) PCR (1806) PCR (1806) '3500 mod 2<sup>33</sup>' 가 PCR(100) PCR(3500)  
 ( 5 )  
 5 5, (a) 가 4 (b) , 가  
 5 '가 2 PCR , 2 0- 가 (0-bit process) 가 ,  
 0 , PCR '0' '2<sup>33</sup> - 1' PCR 가 ( ) 2 4 , '2<sup>33</sup> - 1' PCR  
 가 PCR 1 2 , X 가 PCR 2 2 , 'X mod 2<sup>33</sup>' PCR  
 가 ,  
5  
 5 17 4  
 20 (2004) 18 (2000) 4 (2000) (2004)  
 4 (2004) PCR 가 , PCR (2003) PCR (2003)  
 PCR (2003) (a) PCR (2002) PCR(P4) , P4 PCR (2004) (2002)  
 PCR (P5) 가 P5 > P4 '2<sup>33</sup> - P5'

, (b) 'P5 - P4'  
 PCR d3  
 , (c)  
 PCR d3  
 , (d)  
 (2006)  
 (2004)  
 PC  
 가  
 R PCR  
 (2007)

5

5 (2000)  
 4  
 . 21

S42 (2000), PCR (2001)가 PCR(P4)  
 PCR(P5) (S42). PCR (2003)가 P4가 PCR(P4)  
 P5 > P4 (S43 'Yes' (2004)), S44 (S44).  
 P5 > P4 (S43 'No'), S41  
 PCR S46 (2003)가 (2004), 가 가 (S41  
 (2003)가 (2004), 가 ) S45 'Yes' PCR  
 .

22

(2004), 'P6' 가 , PCR (2003) 'n1 + 233 - (P6 + P5 - P4) × i'  
 CR , 'i' NPT 가 , 'P4' PCR (2001) PCR , 'n1' NPT  
 (52) PCR (S51). PCR , 'P5' P  
 PCR (2003) 'PCR = 0, NPT = n2, NPT 가 = i'  
 가 (S52).

가 , 2 , 가 , 가  
 가 (6 )

6 6 , (a) 가 1 , , (b) 5  
 .

6 , 2 가 (a) 1 , 1 2 , 가  
 1 2 , , PCR PCR  
 . . , (b) PCR  
 . .

6

23 1 (6) 1 (80) 가  
 1 (1) . , (86) 가  
 (86)

PC

R	(86)	(82)가 (84)	PCR	PCR
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6

PCR	(86)	(82)가	PCR	PCR	PCR	PCR
PCR	,		PCR	PCR	PCR	가
,	0.5	,	,	PCR	'100'	,
PCR	'0.5 × 90000 = 45000'		,	PCR	'100 + 45000 = 45100'	.
(93)	(93)	1		(23)		,
	(91)가		.	PCr		1
	(23)		.			
PCR	(a)	(93)			PCR	,
(83)	PCR	(91)가			PCR	(b) PCR
		PCR	(92)	가		,
, PCR					PCR	,
0.3			PCR	(92)	'400'	,
$3 \times 90000 = 27000'$			PCR	'100'	PCR	'0.
						.

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(1) 2	PCR	PCR	(23)가	PCR	(32)	PCR
PCR	,	,		PCR	(32)	
				d1		
(2) 3		PCR	(43)		(45)	
	,		,	PCR		.
-Q(net - Q)'						
(3) 3			(43)	2	(40)	
(45)	,			,		.
				)		,
(4)	MPEG2-TS				MPEG2-TS	
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(5)			,		,	,
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(6)	9,    13,    16,    19,    21    22					( ), ,
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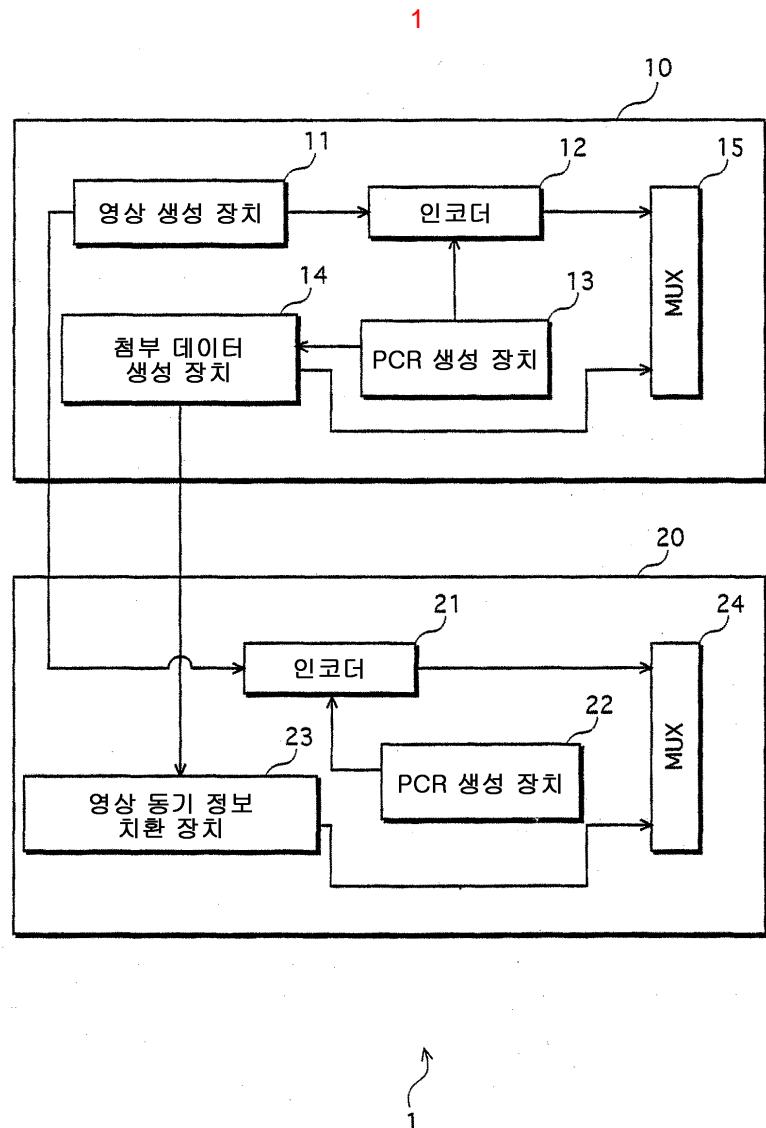
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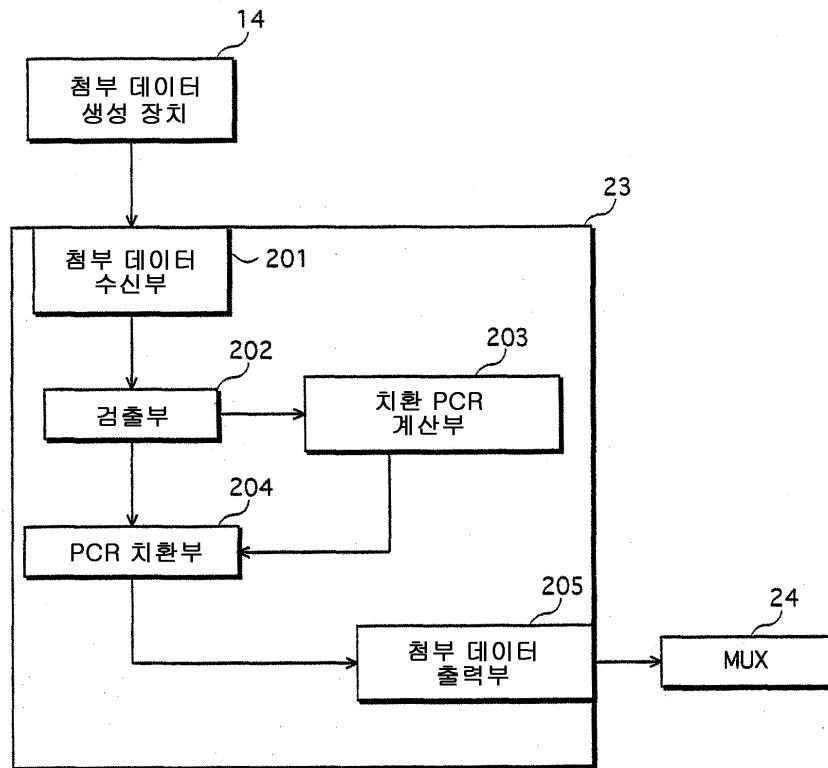
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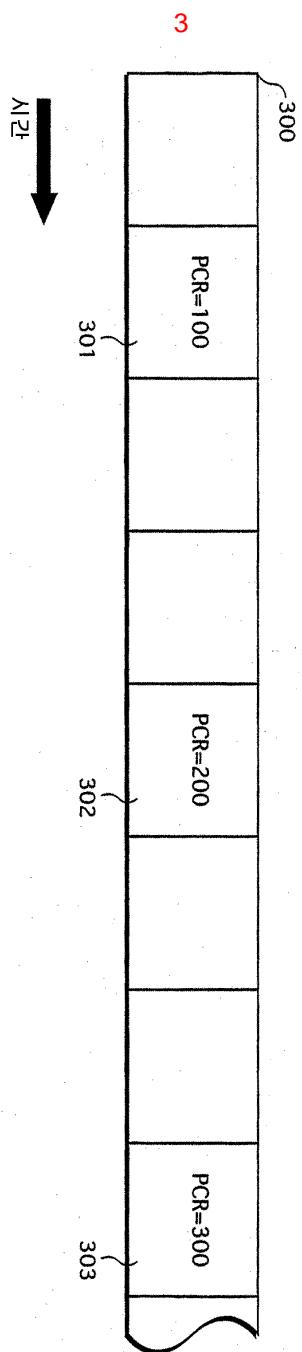
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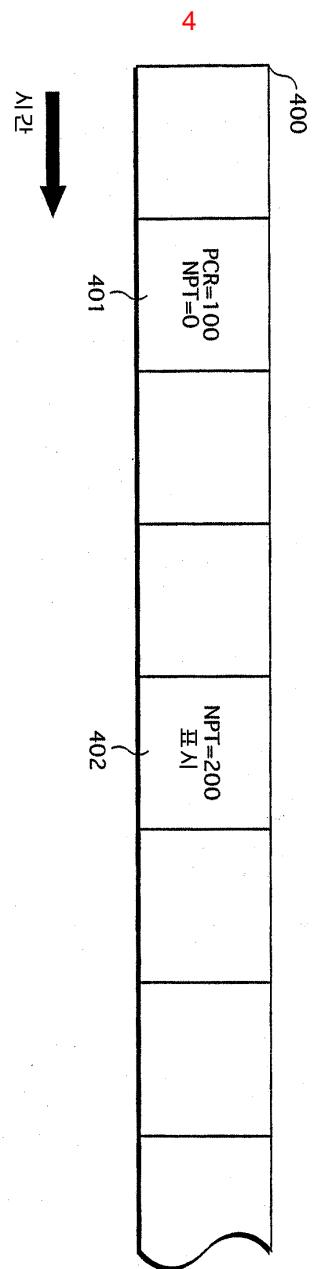
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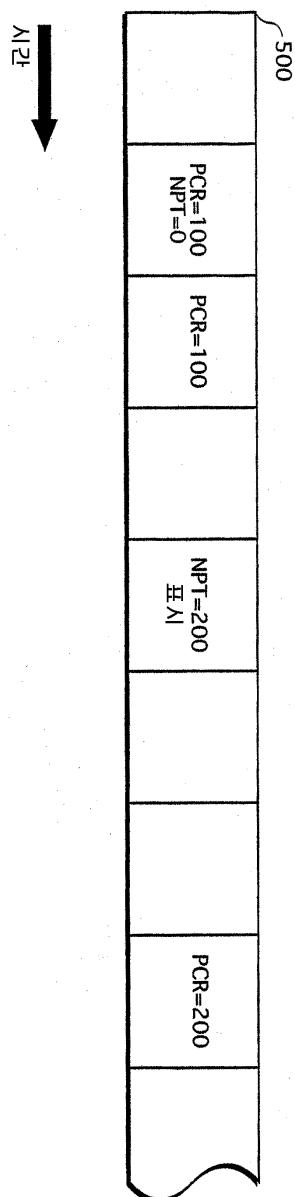
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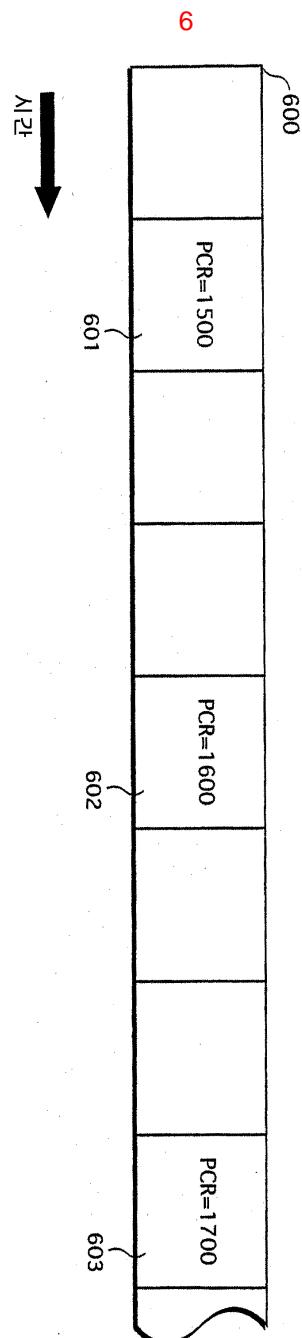


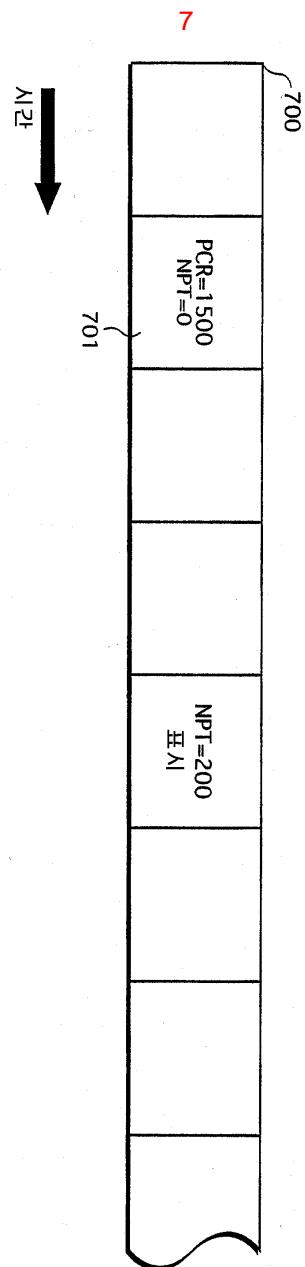


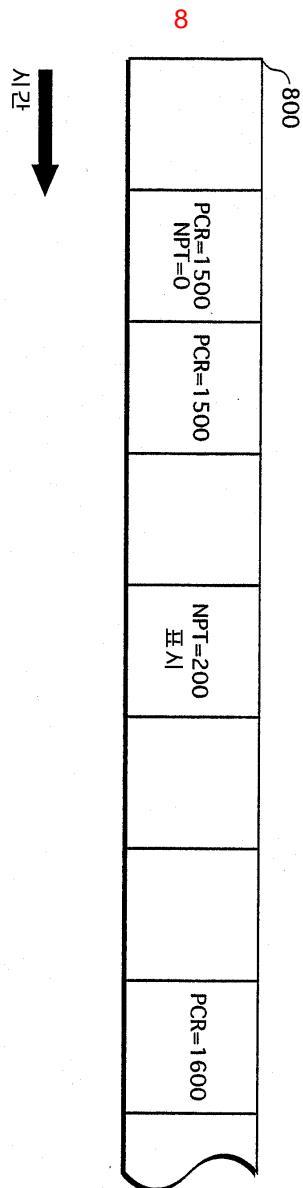


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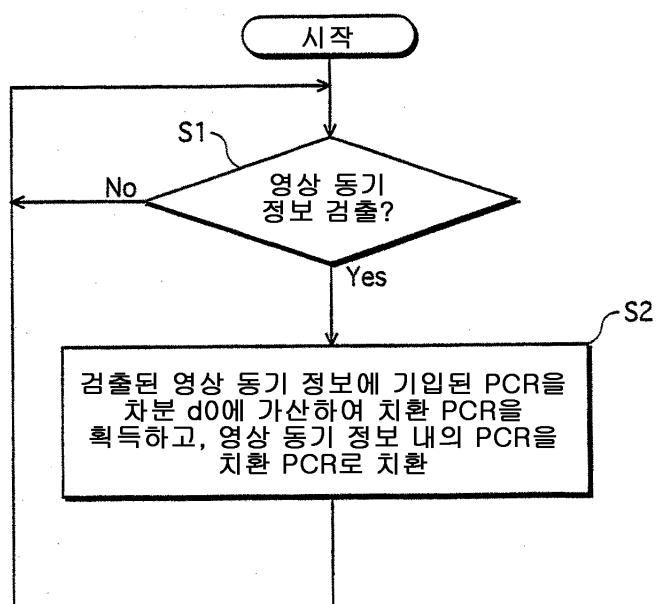




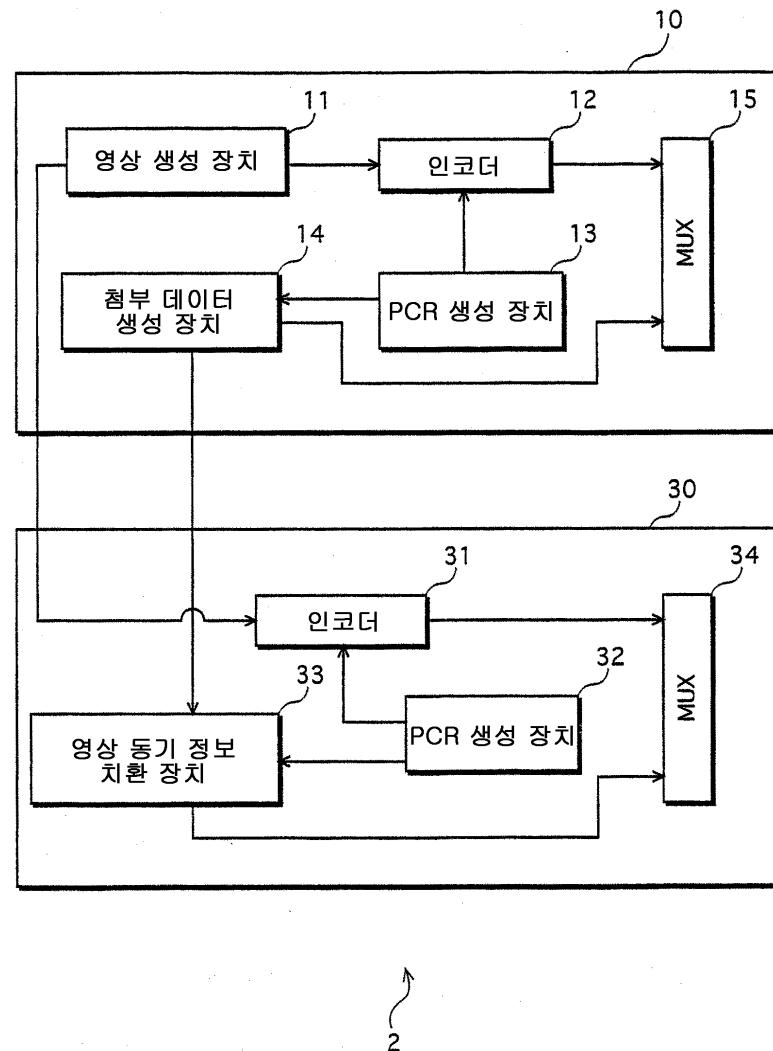




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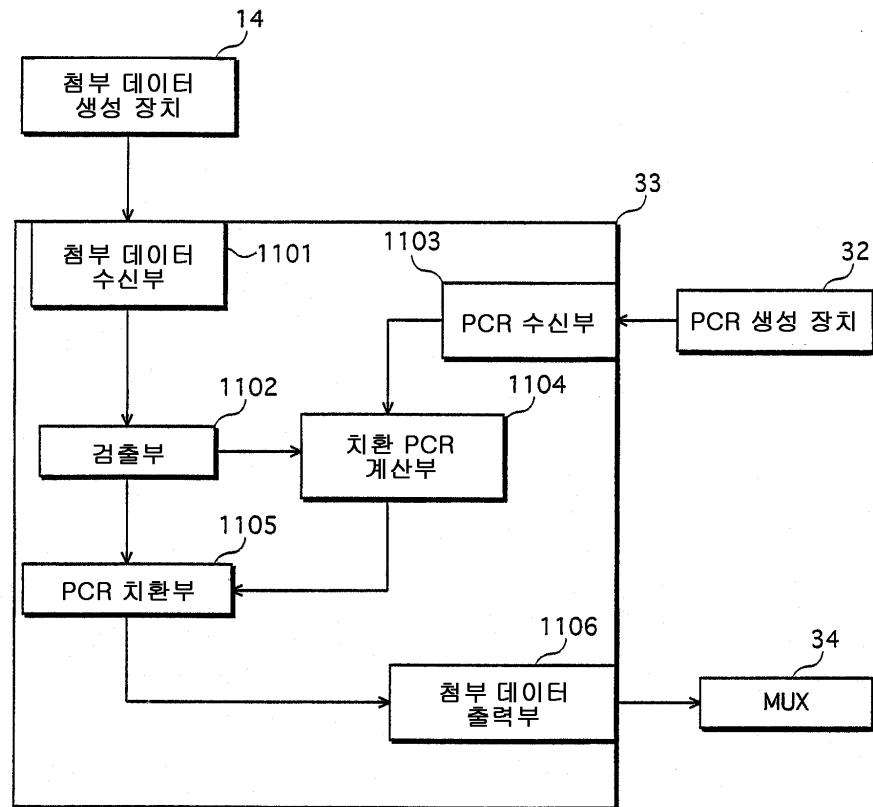


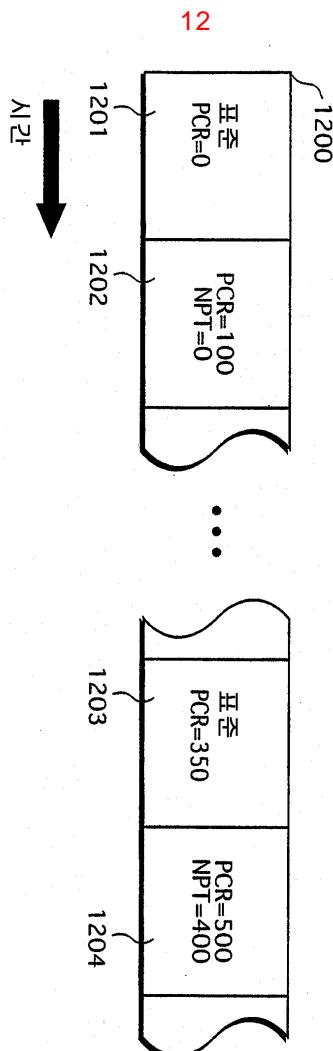
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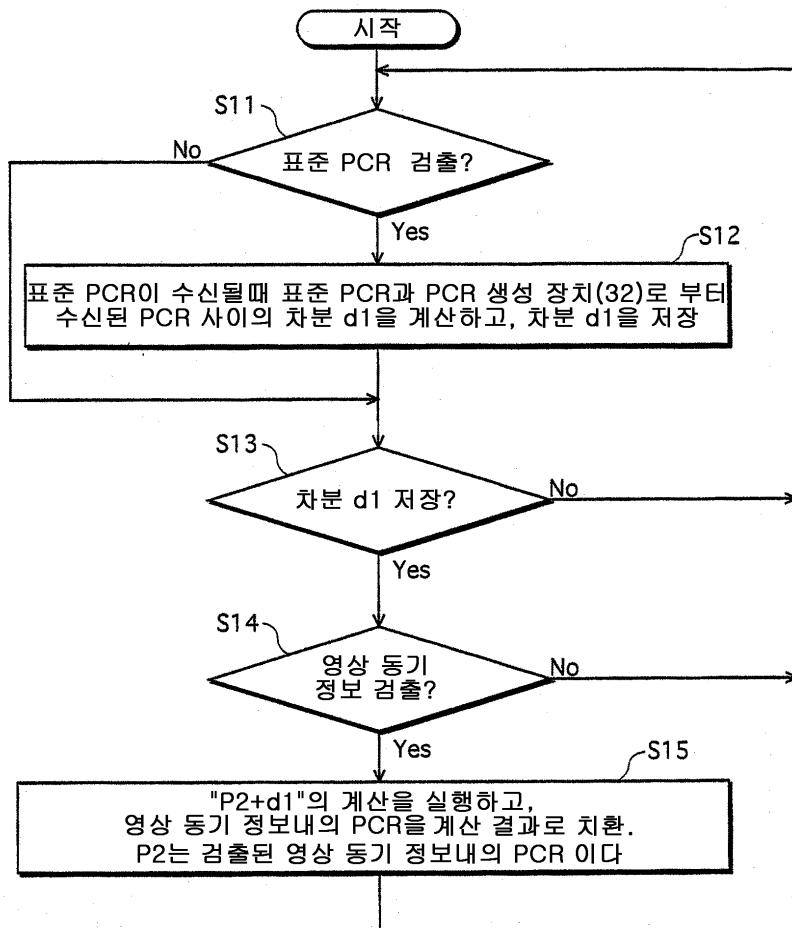
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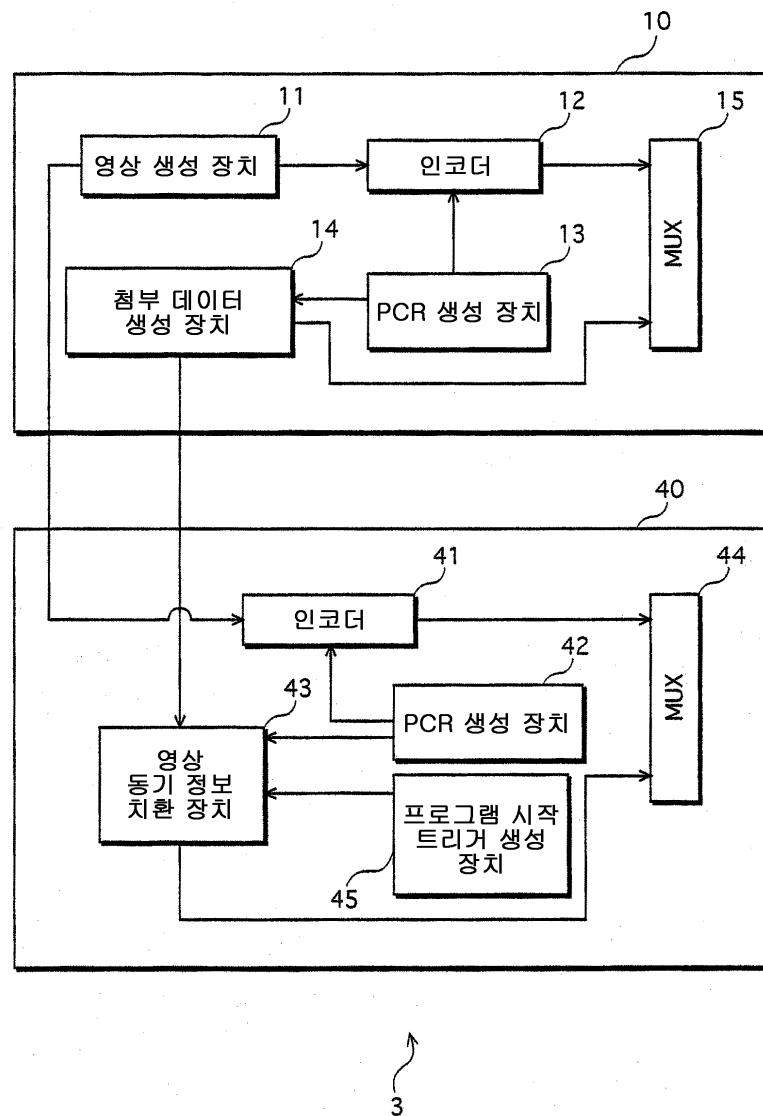




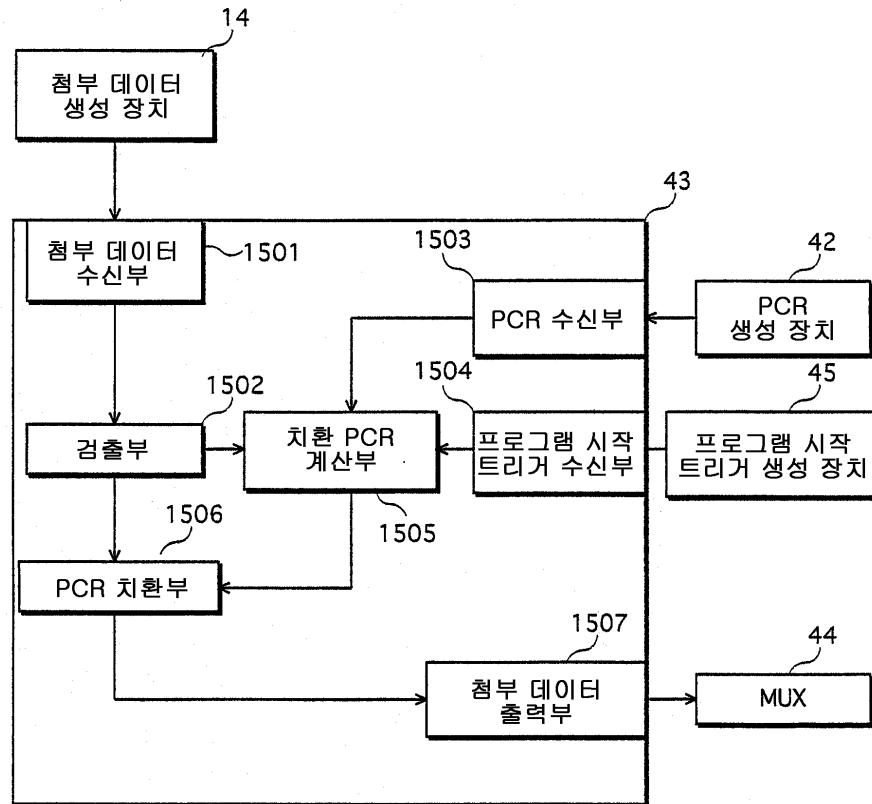
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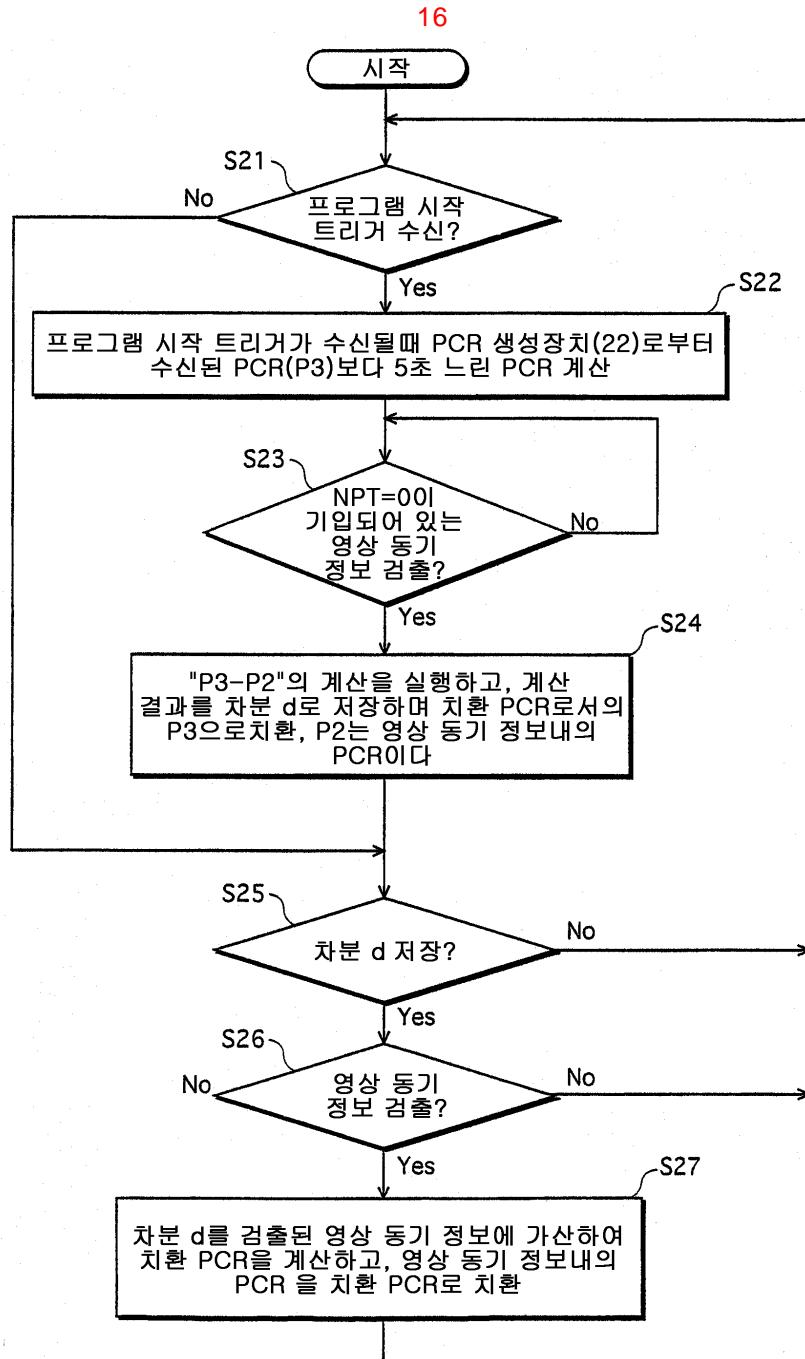


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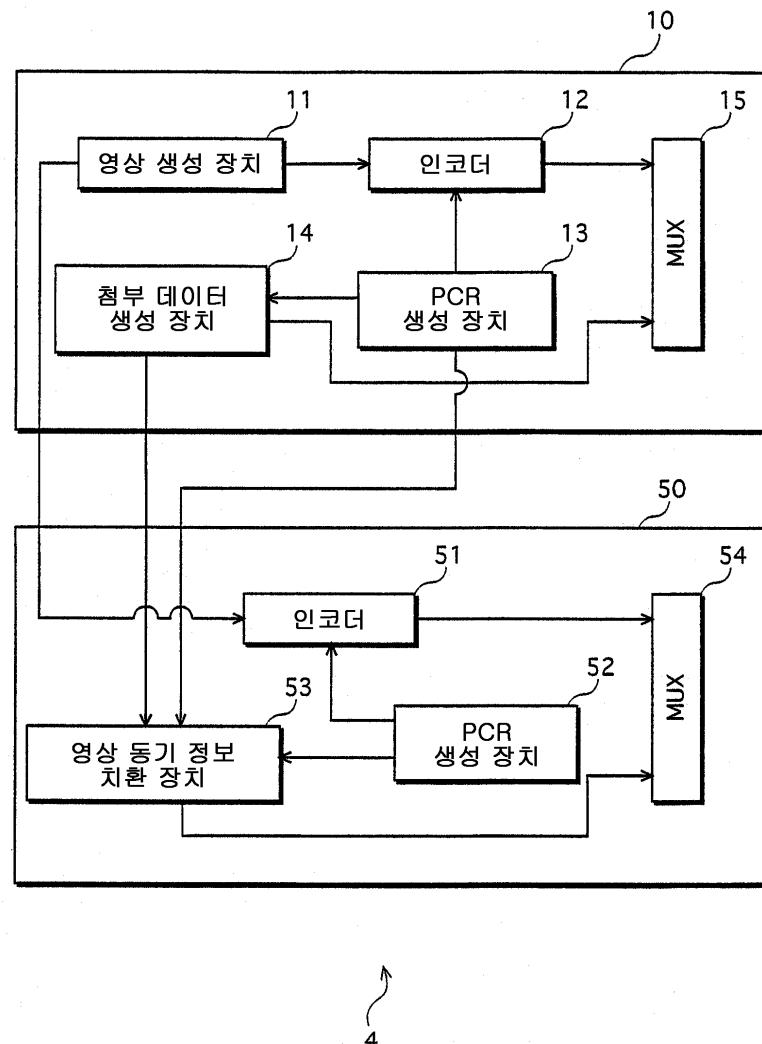


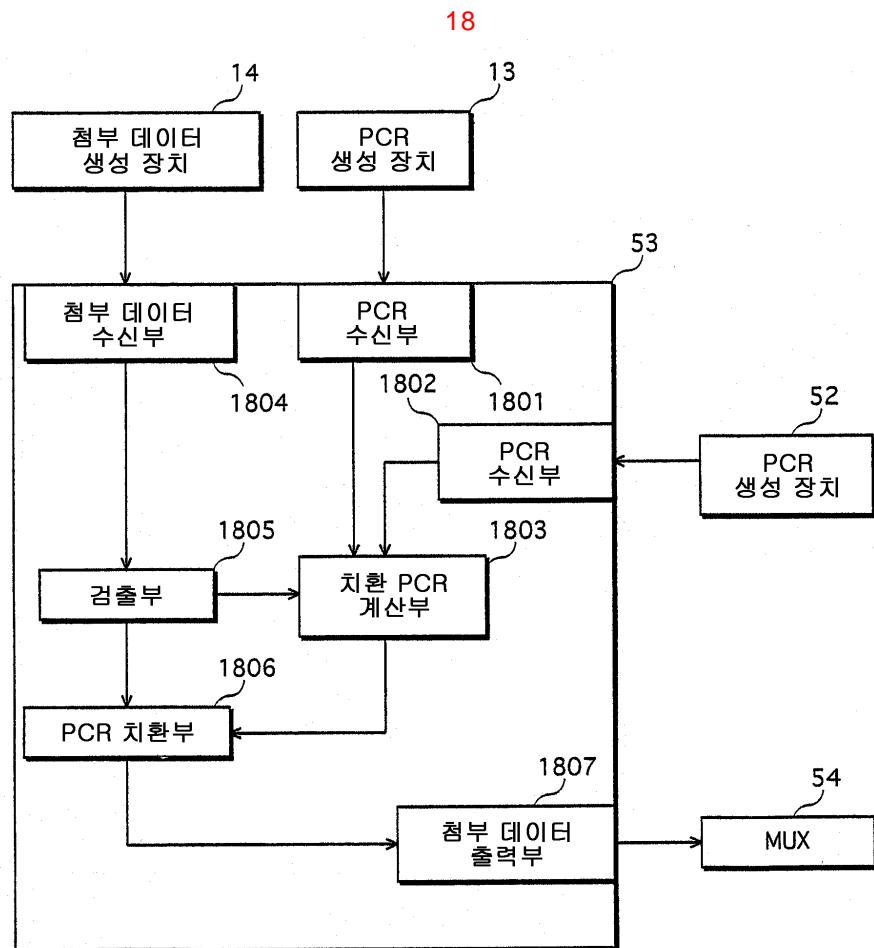
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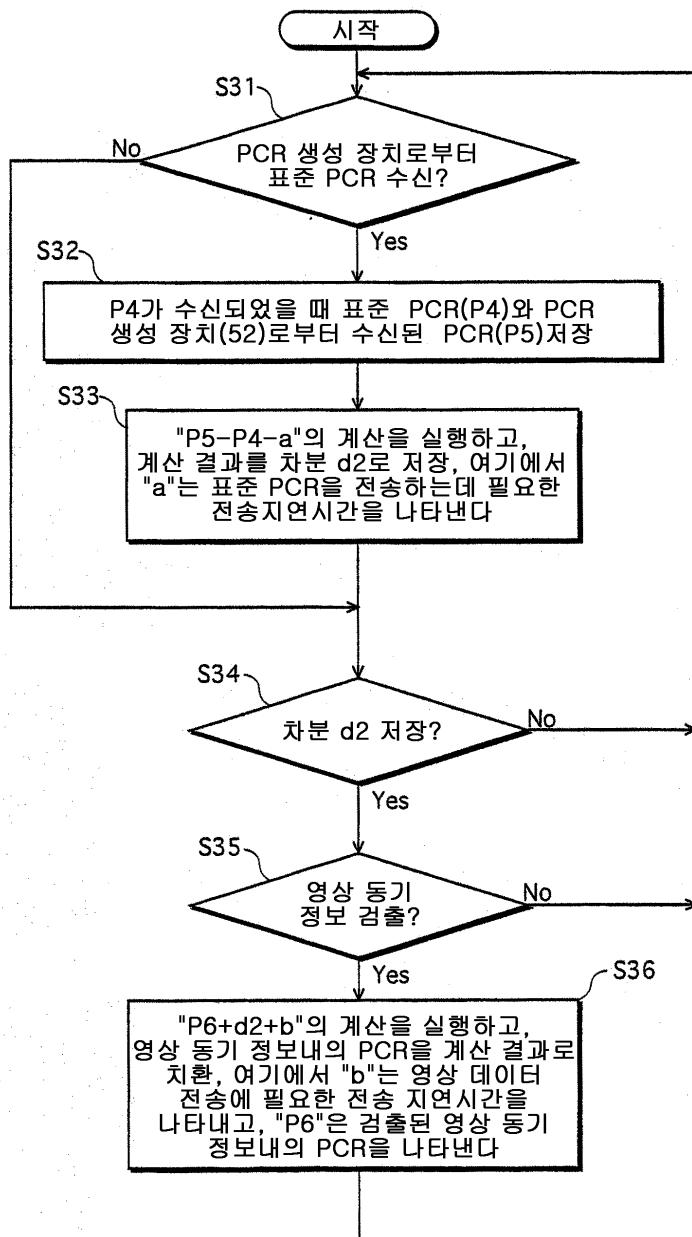


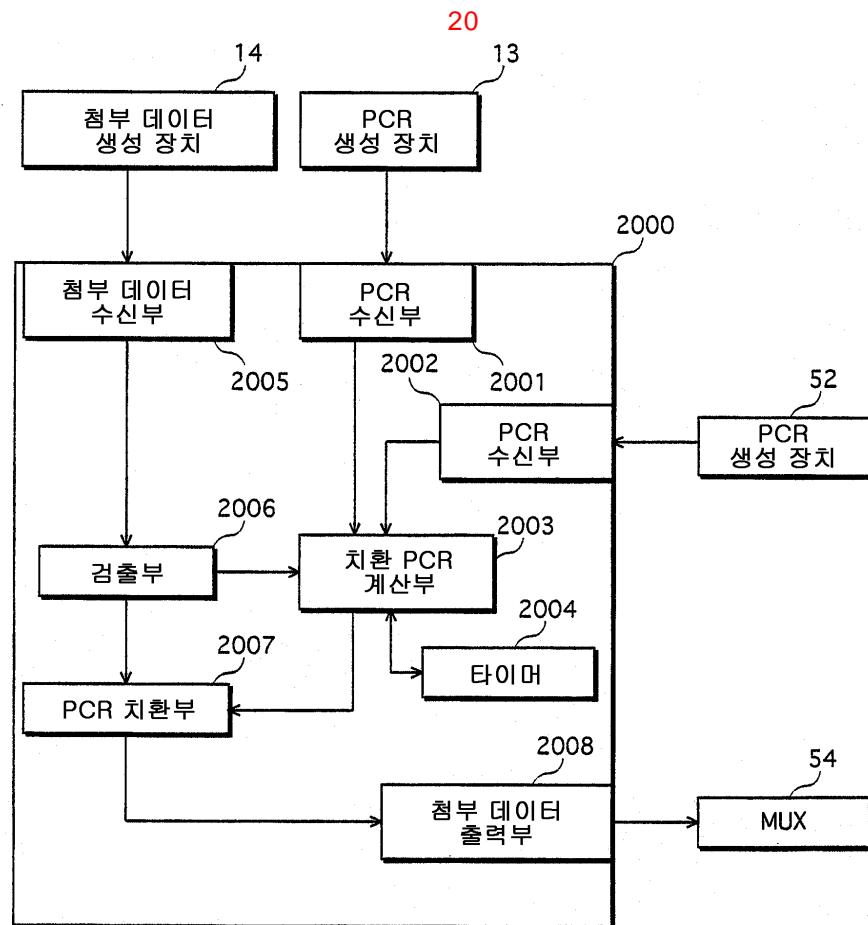
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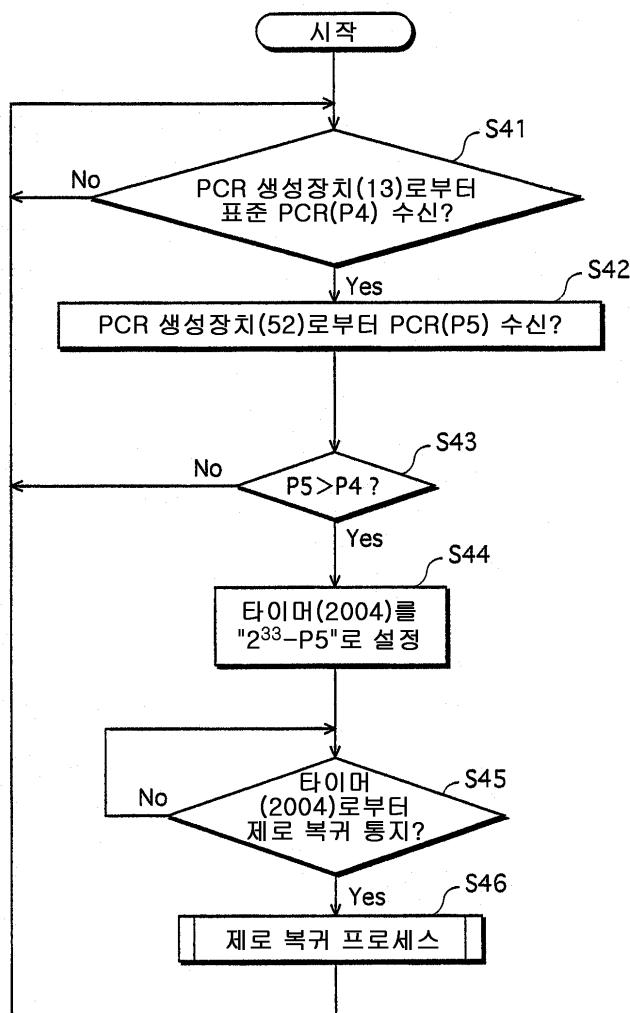


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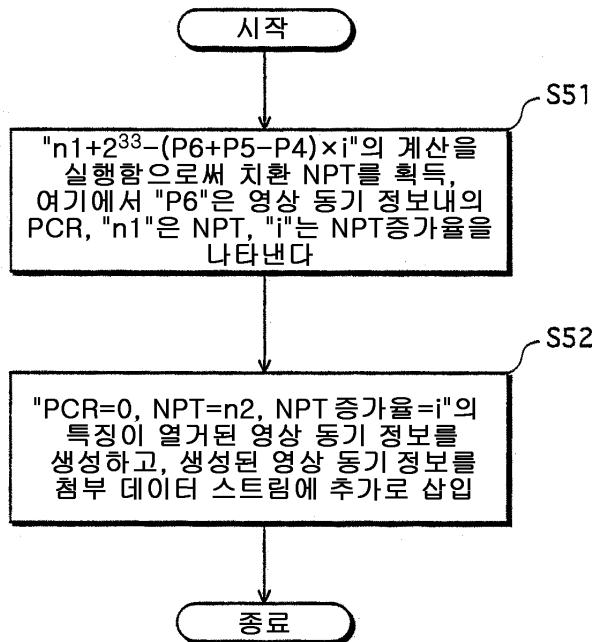




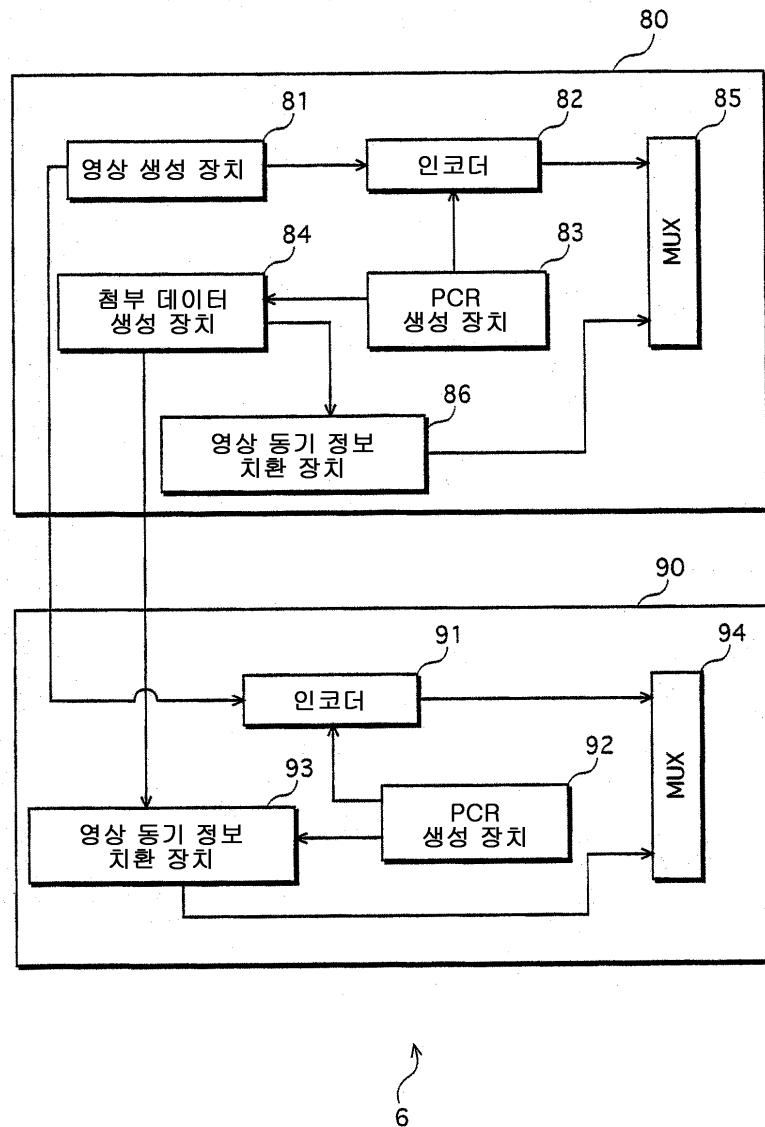
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