

(19)
(12)

(KR)
(A)

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G06F 3/06

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(43)

2002 - 0064357
2002 08 07

(21) 10 - 2002 - 7008037
(22) 2002 06 21
2002 06 21
(86) PCT/US2000/29503
(86) 2000 10 26

(87)
(87)

WO 2001/46792
2001 06 28

(81) : , , , , , 가 ,

(30) 60/171,779 1999 12 22 (US)

(71) 920(:95066)

(72) , ,
80501 1832
, ,
80020 118 5845
, ,
80503 2914
, ,
80026 - 8834 2285

(74) :

(54)

(VBM)

가

가

4

가 / 가 / 가 (chunk), 가 가 가

2 (macroscopic sense) 2

가

(character - by - character)

U.S. 5,276,662

가
(prompt).

가

가

가

" (watch over)"

가 가

가

가

가

가
가

가 /

가

()

가

가

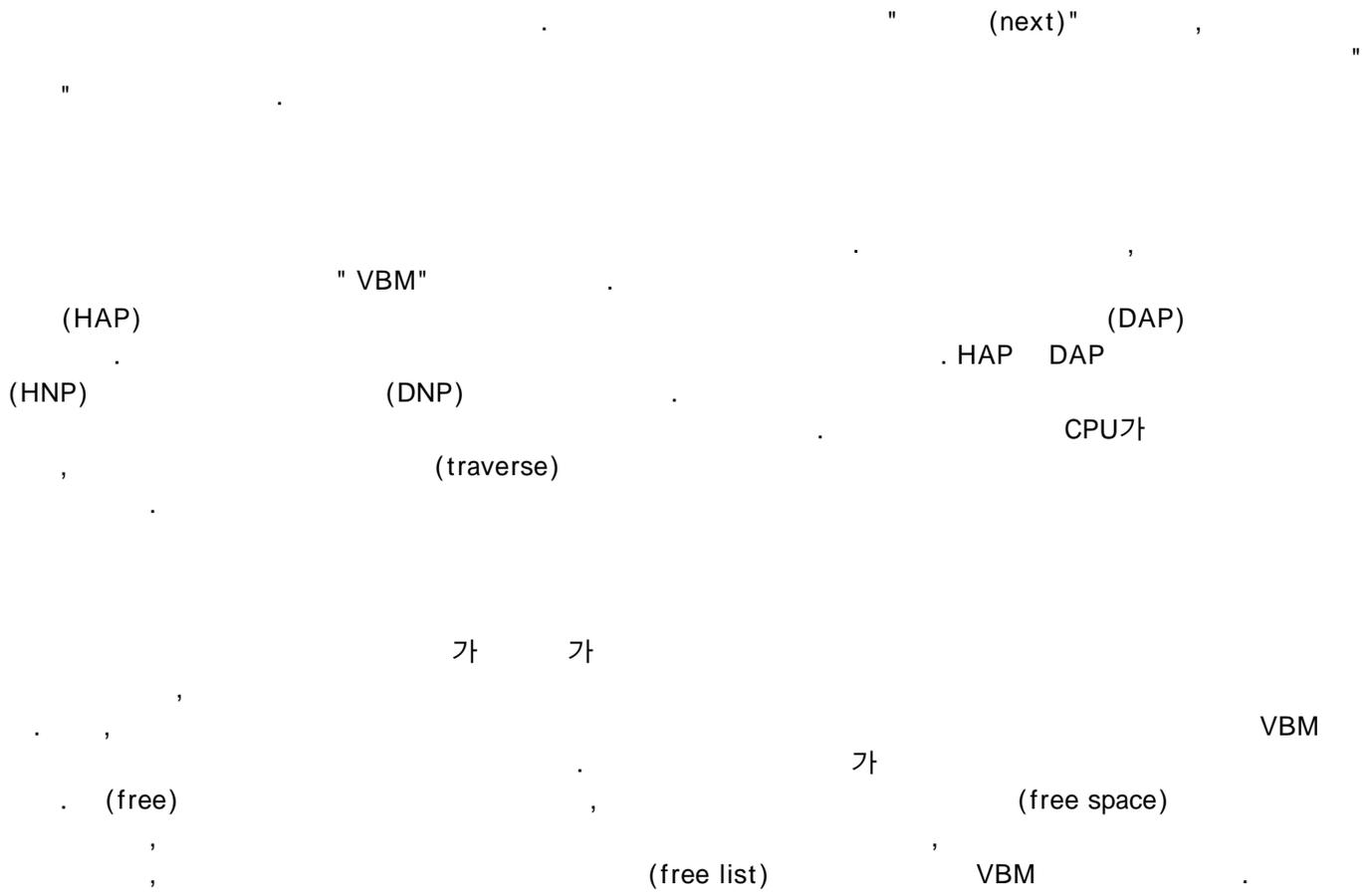
가

(VRAM)

가

가

U.S. 5,765,193 , , , " , " 가 , 가 , " 2 가 , 가 , / , , 가 , " " . U.S. 5,765,193 가 , 가 2 , , " (LRU) , 가 , 가 , 가 (first - i n - first - out) 3 , 3 , 가 , 가 , 100 - 45 50 , 1 44가 " " , " VBM" , , VBM 가 , VBM 3 : , (single linked list) , VBM (LBA)



- 1
- 2 1
- 3
- 4
- 5 4
- 6 4
- 7
- 8 -
- 9
- 10

11

12

13 4

(100) (102) (100)가 1 (100) (104)

(100) (108) (106) (102) (108)

(112) (110) (108)

(160)(3) (160) (110) (108)

(114) (114) (116) (116)가

(118) (118) (108) (118)

(118) (116) (100)가 (108) (120)

(118) (118) (118)가 (110) (120)

(actuator latch arrangement) (120)

(118) (110) (126) (126)

(126) (128) (126) (VCM)(124) (12)

8) (126) (126) (126) (110)

(112) (118)가 (108)

(110) (110)가 (130)

(110) (114) (116) (118) (132)

(118)가 (118) (132)

() (102) (118) (100)

() (134)

2 , (100)

1 (100)가 (100)가 2

(100) (140) (140) (142)

(142) (MEM)(143) (142)

(100) MEM(143) (RAM),

(ROM), (142) (108)

(148) 가 (150) (118) (110)

(140) (100) (145)

(144) (140) (100)

(100) (140) (145)

(118) (146)

(100) 가 (118) /

(146) (144)

(144) (140) (145)

(100) , 1994 6 4 Shaver U.S. Pat. No.

5,276,662

3 (108) (108) 가 (108) (160) (160) (INDEX)(162) (108) (108) (164) (164) (108) (168) (108) (160) (164) (108) (164) (164) (108) (16)

08) (108) (160) (INDEX)(162) (108)

6) (108) (164) (164) (108) (160) (160) (108) (160) (108) (164) (spaced servo segment)(164) (108) (16

8) (164) (spaced servo segment)(164)

12 (145) (400)

(399) (417) (402) (206)(4) (208)(

4) (145) (404) (206) ,

(210)(4) (406) (210)

(202) (408) (140)(4) (145)

(145) (210) (410)

108) (412) 가 (145) (

(414) , " (look - up)" , 가

(416) (408) 가 가 (416) (412)

4 가 (145) (145) (200) (140) (108) (200)

가 : (202), (204), (206) (108) (206) 3

(208) (208) , 512 가 (210) n

(208) (210) (206) n (210)

1 n=9 n (208) 2 (210) (206)

1

[1]

#()	
0	1
1	2
2	3
3	0
4	7
5	6
6	8
7	5
8	4

, 1 2 3 , 2 (210) :

2

[2]

#()	
0	1
1	2
2	3
3	0

3

[3]

#()	
4	7
5	6
6	8
7	5
8	4

(206) , (208) (200) 2 :

(214)(" ") (212)(" ") ".2 , (200) ,

(214) (212) (210) , (200)

. , 3 , (214)

(212) (204) (208)" 4" ,

(204) (212) (208)" 7" .

(208)" 7" , (204) (212) (208)"

5" . (204) (214) " 4" (208)

, (210) (204) (enclose). , (206)

(206) (204) (202) .

5 , 4 (200) 가 (204)
 (204) 2 - : (204) (200) (HNP:222) (HAP:220)
 (DNP:226) (DAP:224)
 (204) - - (206) (walk through) (
 222) (226) (220) (224)
 (208) (204)
 (202)

(145) (220) (145) (222)
 (206) (220)가 (210) " " (208) (22)
 0) (222) (212) (210) " "
 (208) (214) (220) (222)
 (212) (210) (220)
 (208) (222) (208)
 (220) (208) (212) (210)
 (wrap) (220) (214) 가
 (210) 가

가 (145) (108) (204) 가 (108)
 (145) (224) (145)
 (108) (108) (226) (226)가 (20)
 6) (210) " " (208) (224)
 (226) (210) " " (208) (214) (2
 12) (224) (226) (224)
 (212) (210) (224)
 208) (108) (226) (210) (208)
 (224) (208) (212) (210)
 가 (224) (214) 가
 (210)

가 (224) (145)
 (208) (164) (160)
 (108)

6 (204) (145)
 (244) (246) (224)
 (252) (250) (220)
 (240) (242) (226)
 (222) (248) (145) VBM (206)

(145) (247) (249) , ,
 (248) , (acknowledgement control line: 241 243) ,
 (145) (247) (249) (247) (249)
 가 가 (145) , (241) 가
 (247) (145) 가 가
 (145) (243) 가 (249)
 (145)

(240) (145) (208) (212)
 (246) 가 (244)
 (245) (208)
 (244) (256) (244) (256)
 (B) (256) (A) , 512 , (208)
 (244) (A) , (240)
 (246) , (256) (208)
 (246) (208) (145)
 (240) (212)

(242) (145) (208) (212)
 (250) 가 (252)
 (251) (208)
 2) (258) (B) , 512 , (252) (258) (A)
 (258) (B) , (208)
 (252) (242)
 (250) , (258) (208)
 (250) (145)
 (242) (212)

13 , (204) (260)
 (262), (traverse down counter)(264), (266)
 (262) (214) (214)
 (260) (208) (266) (260)
 (262) (264) (210) (204)
 (260) (266) (264)
 (264)가 (204)
 (210) (142) (204)
 (hop)가 (212) (208)
 (266) (260) (214)
 (262) (212) (264)가
 (208) 가 , (260)
 (214)

(206) (202) (202) (202)
 (202) (200) (202) (145) (208)
 가 가 (140) 가
 (145) (202) (220) (226)
 (204) (206)

7 (140) (145) (299) 31
 7) (202) (300) (202)
 (140) 가 (208) 가 (145)
 (208) - (145) (208)
 (164)가 4 , -

4

[4]

#()	
0	1
1	2
2	3
...	...
...	...
n-2	n-1
n-1	0

(202) (208) - (140) (145)
 (210) (308) (202) (202) (206)
 - (208) - (202) " - - (free_space_start)"
 (208) 1 (208) (202) (145)
 (220)가 - - 1 (208) (202)
 (302) (202) (208) (incoming data) (310) (204)
 (202) (220)가 1 - -
 (312) (202)
 (202) (316) (314) (202)
 " (208) (208) (212) (220) " "
). (220) (222)가 (208) " "
 - " (316) (202) (208) " -
 (210) (208) (208) (210) (208)
 (210) (206) - (210) (208)

8 5

8 (329 339) 가 - (108)

(210) (200) (202) " L" (108)가 (140)
 7 (310) , (330) , (202) 1 , " - -
 " , 1 (208) (220) (332)
 (208), , - - (206) "
 L - 1" (260)
 (210) (208) (334) " - - " " L - 1"
 (208) " - - "
 (212) (208) " - - "
 (212) (210)가 -

(336) (208) (33
 8) , " - - " (208) (212)
 (206) (208) (140)가
 (145) (210) 5 L=3
 4 - - (208) (210)

5

[5]

#()	
0	1
1	2
2	0
3	4
...	...
n-2	n-1
n-1	3

(0 2) (202) (220)
 (210) , (3 " n - 1" - (208)
 " 3" (202) (140)가 (22
 0) " - - " , (206) - , 가
 3 가 " n - 3" , 2 (210) (210)
 가 (210)

9 , 가 (202)
 , 2 가 9 8 (300) (140)가
 (202) (320) ((202)
 322) , 가 (202) , (202)
 (LBA) (208) LBA
 , (300)

8 (145) .

LBA (324) (old) (208)
 (212) (208) (208) " "
 ; (208) (324) 2 (208)가
 , (300) 8 (145) 6 8
 (206)

6

[6]

#()		
	" "	" "
0	1	1
1	2	2
2	0	4
3	4	0
4	5	5
5	6	6
6	3	3

, L=3 L=4 L=7 (208) 0,
 1 2 LBA LBA
 , (210) 1 (208)(0) (212) 0 (214) " "
 (202) , (210) 1 (208)가 , (222) 0
 (3, 4, 5, 6) . 3

10 (145) (108) , (349)
 359) , (202) (350) , 1
 (208) " " (108) (352) , (208) -
 (354) , (202) (224)가 (208)
 (108) (208) 가 ,
 (208) (140)

(356) , (202)
 , (358) , (202) , (208) (212)
 , " " (208) (224) (224)
 (208) , (202) (352) (352)
 (224)가 (210) ,

(202)

(210)

(108) , (208) - 가, LBA
 (108) , (108) , (202) , (208)가
 (108) (108) (202) (206) (108)
 . 7 .

7

[7]

#()		
0	1	
1	2	< -
2	3	
3	4	< - _ _
4	5	
5	6	
6	3	

, 3 - - " 3" 1
 (108) 가 (210) () -
 3, 4, 5, 6 - (202) (108)
 (208) (208)
 (202) (224)가 (1 (208))
 (220) , (208) 가 (108)
 (224) , (202) (224) (220)

(200) (202) 2
 (210) (210) 가
 (145) (108) 가 2
 (210)가 (108) (164) (202)
 (206) (210) (210) " " .

11 , (379 385) , (202)
 . (380) , (210)
 (164) (108) (382) , 가
 (164) , (381) (206) (210)가
 , (380) (210)가 ,
 (210)

(384) (210) 가 (108) , (208)
 (212) (384) (210) 1 (208) (214) ,
 2 (210) (210)가 (380) , (381)
 (145) (ongoing process) 8 9 (384) 가 :

8

[8]

#()	
0	1
1	0
2	3
3	6
4	5
5	4
6	2

9

[9]

#()	
0	1
1	4
2	3
3	6
4	5
5	0
6	2

(206) 8 3 (210): 0:1,
 4:5, 2:3:6 , 0:1
 (210) (108) , 0:1 4:5 (108) , (202) 2 (210) 가 9 , 9 2
 (210): 0:1:4:5 2:3:6 .

(140) (100) 가 (108) (140)
 (200) (100) (140)
 가 (108) (164)
 (160) , (160) (164)

(100) (140) (108)
 (140) (108) (145)

				(140)	(108)		
	(206),		(204),	(202)		(200)	
	(200)			(208)	(206)		
(208)		(210)		(210)	(206)		(204)
	(206)	(200)		(210)			
(206)가	(208) 가			(210)		(206)	
	(200)	(206)			(202)		(202)
	(204)	(206)				(204)	
	(204)	(204)			(208)		(212)
	(206)	가	(108)	(145)		-	
	(202)			(204)			(414)
	(204)		(145)				(220)
(220)	(220)	(222)	(208)		(212)		
(220)		(210)			(212)		
	(204)		(145)	(208)			
(224)		(224)	(226)		(208)		(212)
	(224)		(210)				
	(206)		(200)	가			
	(208)가	(208)	(108)		(202)		(108)
	(140)	(200)	가		(208)		
(210)		(220)		(202)			
		(108)			(210)	1	(208)
	(210)						
	(202) (380 384)			(210)	(380 384)		
	(164)			(108)	(380 384)		(2
10)	(210)						
	(140)		(100)	가	(108)		
(400)		(400)			-		(2

08) (206) (402) (210)
 (208) (404) (206) ,
 (210) (400) (140) (145)
 (210) (406) (208)
 (212) (210) (140)
 (145) (408) (208)
 가

(400) (210) (410)
 (145) (412) (208) (212)
 (210) 가 (108)

(402) (400)
 가 (300) (406)
 (400) (145) 가 (140) ,
 410) (210) 1 (208)
 (404) (400) 1 (208)
 08) (210) , (400)
 (302) (208)
 (210)

(400) (404) (208) (210)
 (206) (206) (206) (208)
 (210) (400) (354 - 358) (108)
 (208)가 가 (108) (208)

(400) (322) (145)
 (210) (322) 가 (14
 5) (354 - 358) (354 - 358) (208)
 (210) (384) ,
 (164) 가

(400) (408) (222)
 (220) (210) (145)
 (222) (212) (220)
 (212) (220) (210)
 (400) (412) (226)
 (224) (210)
 (226) (212) (224)

, (212) (224) (210)
가 (408) (412) , ((414 416))
400)

가
, VBM ,
, VBM ()
512
가

(57)

1.

가
, 가
;
가
;
(walk through)가 가 , 가
;

2.

1 ,
;

3. .
2 ,
가 , 가 ,
가 .
4. .
3 ,
가 1 .
5. .
3 ,
6. .
2 ,
가 .
7. .
1 ,
8. .
1 ,
, .

9.

가

,

(a) - ;

(b) 가 ;

(c) ;

(d) 가 ;

(e) ;

(f) 가 ,

, 가 ,

가

10.

9 ,

(a) 가 가 .

11.

10 ,

(c) (e) 1 가 .

12.

11 ,

(b) 1 가 .

13.

12 , (d)

() ;

() 가 .

14.

9 ,

(b)

가 .

15.

10 ,

(g) 가 가 가

가 가 .

16.

15 ,

(h) ,

(h)가 ,

가 .

17.

9 ,

(g) ,

가 .

18.

9 ,

(d)

, ,

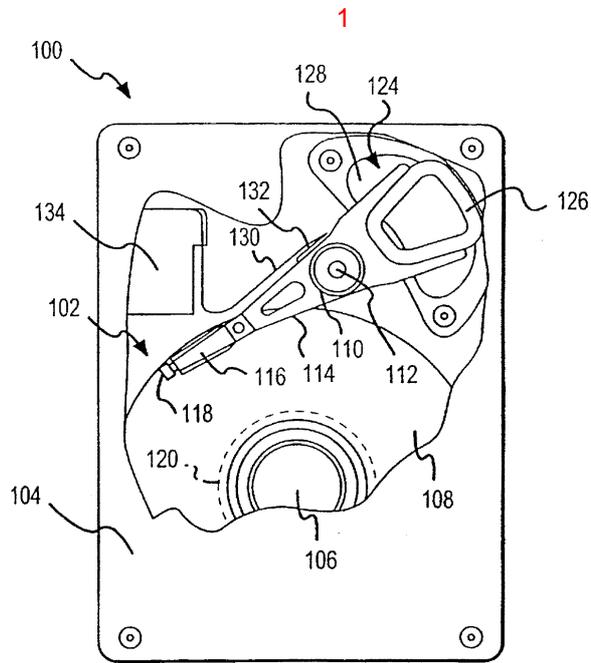
가 .

19.

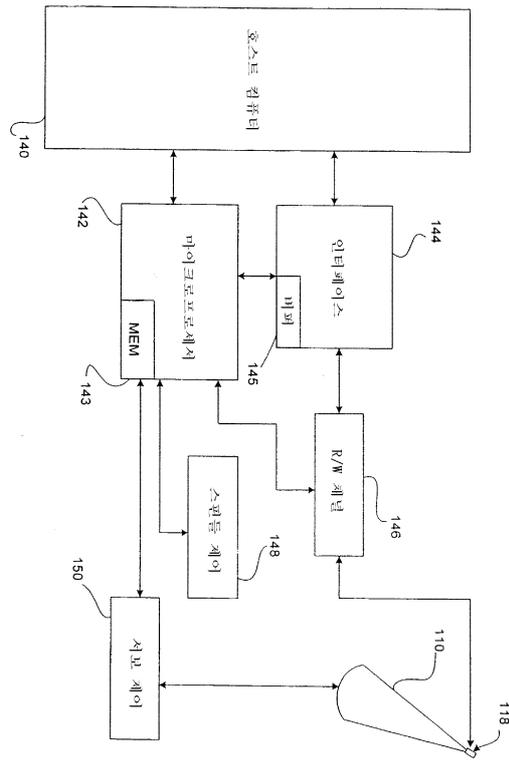
9

(g) (d) (f) 가 (d)
가 (f)

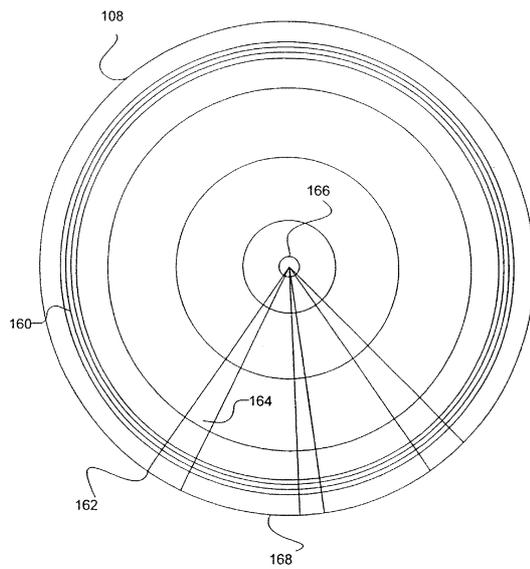
20.



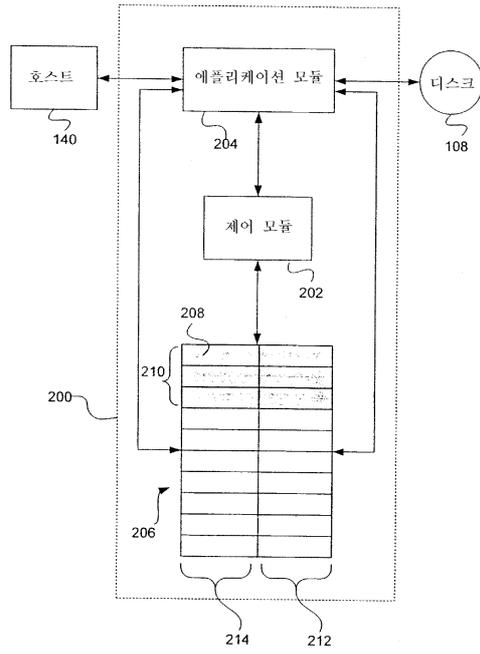
2



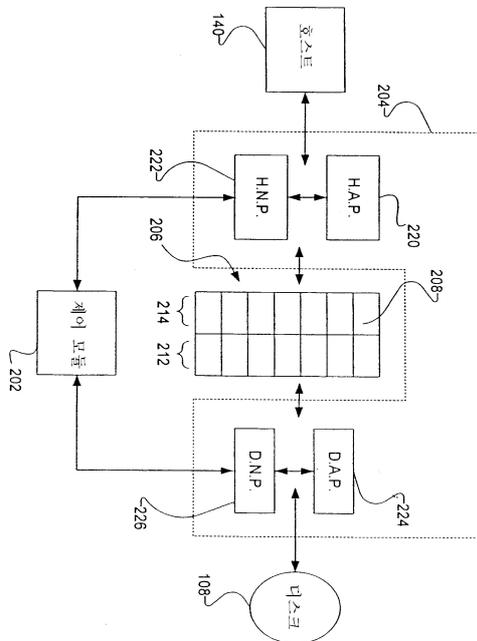
3



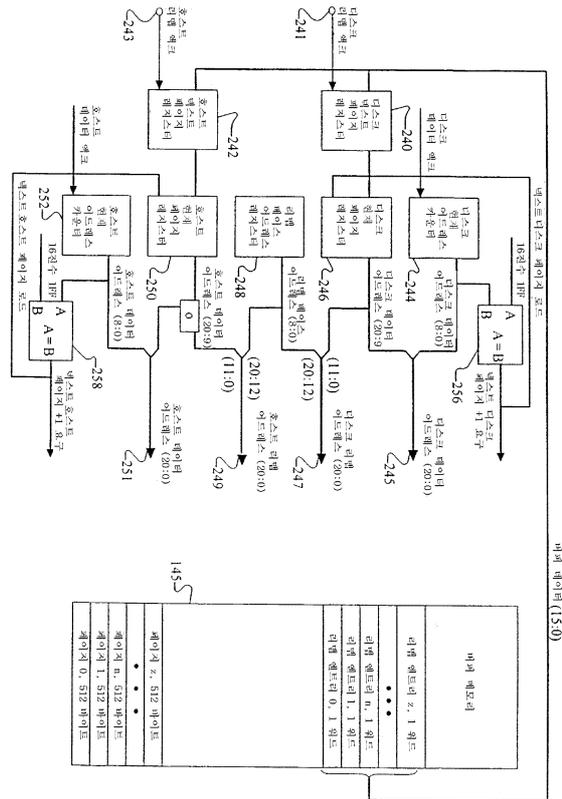
4



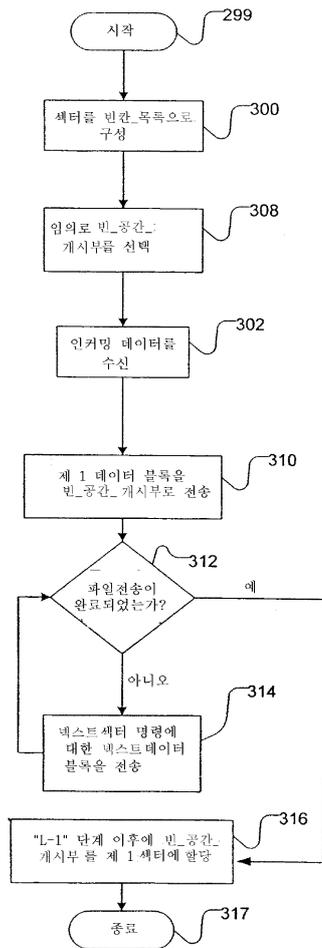
5



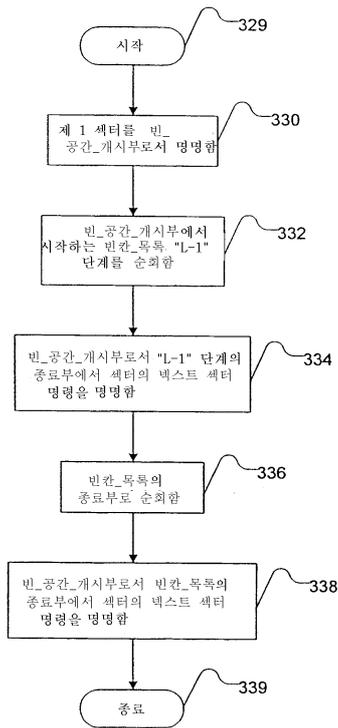
9



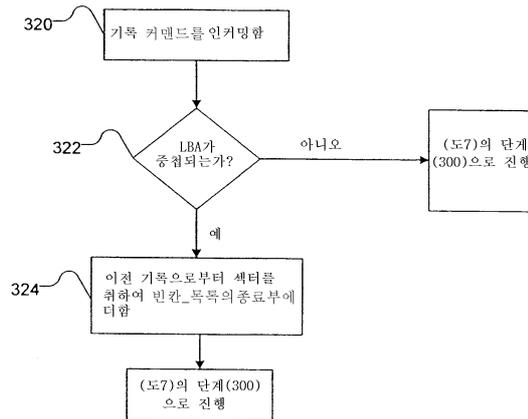
7



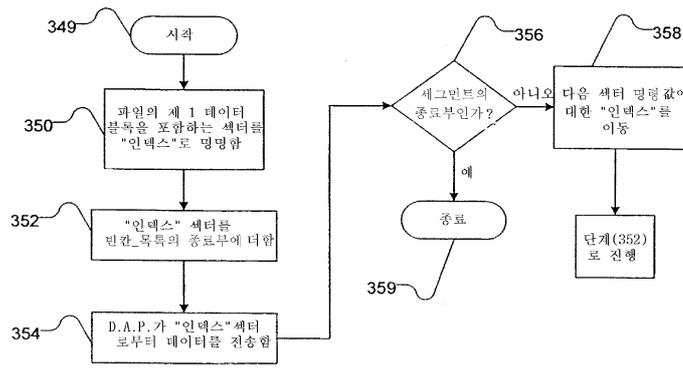
8



9



10



11

