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(24)

2001 12 12
10 - 0314098
2001 10 25

(21) 10 - 1997 - 0021781
(22) 1997 05 29

(65) 1998 - 0085643
(43) 1998 12 05

(73)

3 416

(72)

2 49 - 5 16 7

(74)

:

(54)

(down sampling)	(binary shape)	(interpolation)	,
(context)			
2 (20) ;	1/2 4 (40) ;	1 (10) ;	3 (30) ;
1 7 (70) ;	가 6 (60) ;	5 (50) ;	가 0
		가 8 (80)	,

1
2
3
4
5

(down sampling)

(binary shape)

(c

ontext)

- 4(MPEG - 4)

(content)

가

(binary shape)

가

(binary shape)

(object)

가

가

가

(Context based Arithmetic Encoder

(Modified Modified Read
CAE)

MMR

)

(binary shape)

(

)

ification Model

VM

)

- 4(MPEG - 4)
(CAE)가

(Ver

(MMR) (CAE) (Sampling) (Interpolation)

(Sampling)

(binary shape) (CAE)

(binary shape) (down sampling) (up sampling) (pixel)

1 (binary shape)

1 (a) (binary shape) (down sampling) "O" "

X" , 4 "1" 가 (down sampling) "

1" , "0" .

2 (b) (down sampling) , (up sampling) ,

"O" 4 "X" .

(binary shape) , 1 (c)

(binary shape) (102) (Conversion Ratio CR) (down sampling)

(102) , (102) (CAE)

(CR) 1, 1/2, 1/4 .

(103) (102) (up sampling)

가 (CR) , (101) (103) 가,

(CR) .

가

4

4 "0" "1" 0.5 "1" , "0" , 0.5

,"1" 가 , "0" 가 .

가

(content) (con

1 ; 2 ; 4 (A,B,C,D) (C0 ~ C4)
 4) 3 ; 4 (A,B,C,D) ; 가
 5 ; 가 0 7 1 ; 6 ; 가
 8

1/2 , 1/4
 1/2
 2 , 4 (C0 ~ C4)
 (context ; C_t) , 1

1

$$C_t = \sum_k c_k \cdot 2^k$$

c_k (0 ≤ k ≤ 4) 2 (C0 ~ C4)

2

$$f(A,B,C,D) = A(1-h)(1-v) + B(1-h)v + C \cdot h(1-v) + D \cdot hv$$

h,v A B, A D 1 , A ,

bilinear) , 2 (

2
0.625, 0.75, 0.8125, 0.9375, 1.00 THR[t] 0.0, 0.0625, 0.1875, 0.25, 0.375, 0.4375, 0.5625,
0 1

가
" 0" " 1" 가

1 (10) ; 3 (20) ; 1/2 ()
C0 ~ C4) 3 (30) ; 4 (40) ; 가
5 (50) ; 가 1 6 (60) ;
가 0 7 (70) ;
8 (80)

2 , A, B, C, D,
C0, C1, C2, C3, C4

2 (a) , (A)가 4 (209,210,211,212)

, 2 (A,B,C,D) 가

, " 0 " " 1 "

2 (A,B,C,D) (C0, C1, C2, C3, C4) , (A,B,C,D)

(A,B,C,D) , (I1, I2, I3, I4)

1 (c) , (102) (103) , 1 (b)
" 0 " 가 4 " X "

(I1, I2, I3, I4) , 2 (a),(b),(c),(d)
(ordering)가

2 (C0 ~ C4)

2 (A,B,C,D) 16 , 0 1 12

12 (Interpolation)

, 2 (context) 12 h[c][t] (zero)

(hit) c t 가

h[c][t] O(x,y)

1/2 L(x',y')

, 1/2 L(x',y') (raster scan)

, 2 (C0 ~ C4) 1

t (C0 ~ C4) THR[t]

(A,B,C,D)

B,C,D)가 THR[t] 2 f(A,B,C,D) f(A,

THR[t] (p) " 1 " , " 0 "

(p) O(x,y) 가 1 가

(hit) 가

가

가

4 , 12 h[c][t]

(zero) O(x,y) (501) ; h[c][t] (zero)

(502) ; 1/2 L(x',y')

(503) ; 1/2 (C0 ~ C4) (505) ;

(504) ; THR[t] t

(C0 ~ C4) (506) ; (A,B,C,D)

(507) ; THR[t] 2 f(A,B,C,D)

(508) ; f(A,B,C,D)가 THR[t] (p) " 1 "

(509) ; f(A,B,C,D)가 THR[t] " 0 "

(510) ; (p) O(x,y) (511) ; (p)

O(x,y) 가 1 가 (512) ;

(hit) (hit) 가 (513) ;

(context) 가 (514) ; (hit) 가 가
(515)

가 5
5 (a) (Logo) , (b) , (c)

5 , 가

가 , 가 4

(57)

1.

(original binary image)
(interpolation method) ,

(a) ,
(b) (reference pixel values) (concatenation) ,
(context value) C_p ,

$$C_p = \sum_{k=0}^{P-1} C_k 2^k$$

, P , C_k , k ,

(c) C_p $THR_C(t)$,

(d) (a) " 0" (c) " 1" ,

2.

1 , (c)

(c1) c (a) , t $h(c)(t)$ $THR(t)$

(c2) $h(c)(t)$ (zero) , ,

(c3) (raster scanning) , ,

(c4) t ,

(c5) (a) INP(P) ,

(c6) $THR_C(t)$, $INP(P)$, $INP(P)$ 가
 $THR_C(t)$, " 1" , $INP(P)$
 $THR_C(t)$, " 0" ,

(c7) (hit)가 , $h(c)(t)$, t " 1"
 가 ,

(c8) (c6) 가 , 가
 (c6) ,

(c9) (c3) ,

(c10) , 가

3.

1 , (a) 가 가 가 가 가

4.

1 , " 1" " 0" (c)
 $THR_C(t)$ (a) 12 (default value)

5.

4 , 0, 0.0625, 0.1875, 0.25, 0.375, 0.4375, 0.5625, 0.625, 0.75 0.9375

6.

(a) A, B, C, D

$$INP(P) = A(1 - h)(1 - v) + B(1 - h) + C \cdot h(1 - v) + D \cdot hv,$$

h v

(b) C_p ,

$$C_p = \sum_{k=0}^{\infty} C_k 2^k$$

, P , C_k , k ,

(c) C_p $THR_C(t)$,

(d) (a) " 0" (c) " 1" ,

7.

1 , (a) 가 가 가 가 가

8.

1 , " 1" " 0" (c) 12

9.

8 , 0, 0.0625, 0.1875, 0.25, 0.375, 0.4375, 0.5625, 0.625, 0.75 0.9375

10.

1 , (c)

(c1) c (a) , t h(c)(t) $THR(t)$

(c2) h(c)(t) , ,

(c3) , , ,

(c4) t ,

(c5) (a) INP(P) ,

(c6) $THR_C(t)$ $THR_C(t)$, INP(P) " 1" , INP(P)가 INP(P) " 0" ,

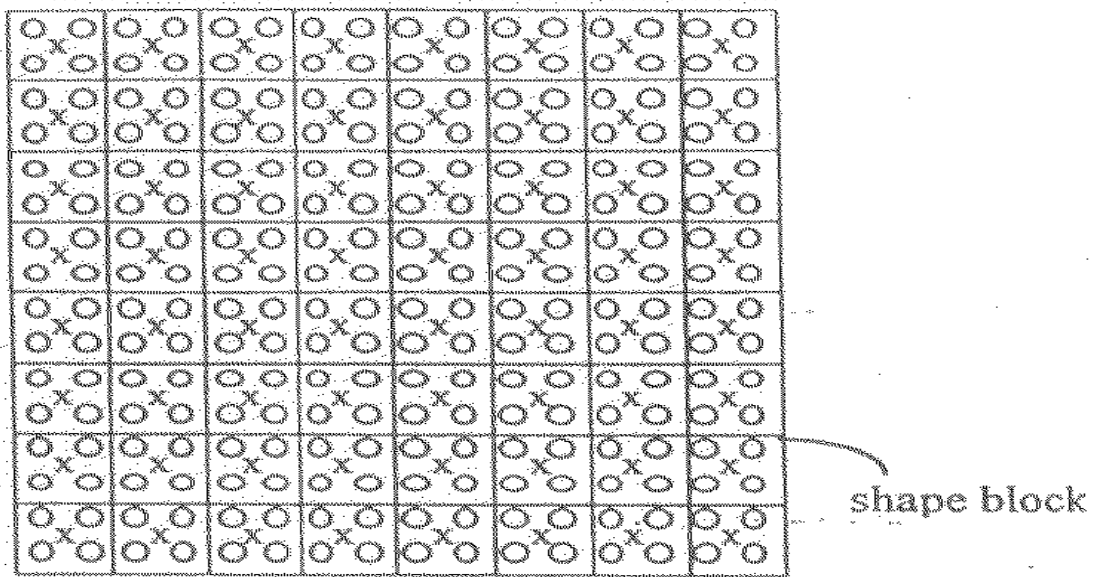
(c7) (hit)가 , h(c)(t) , t " 1"
가 ,

(c8) (c6) 가 , 가
(c6) ,

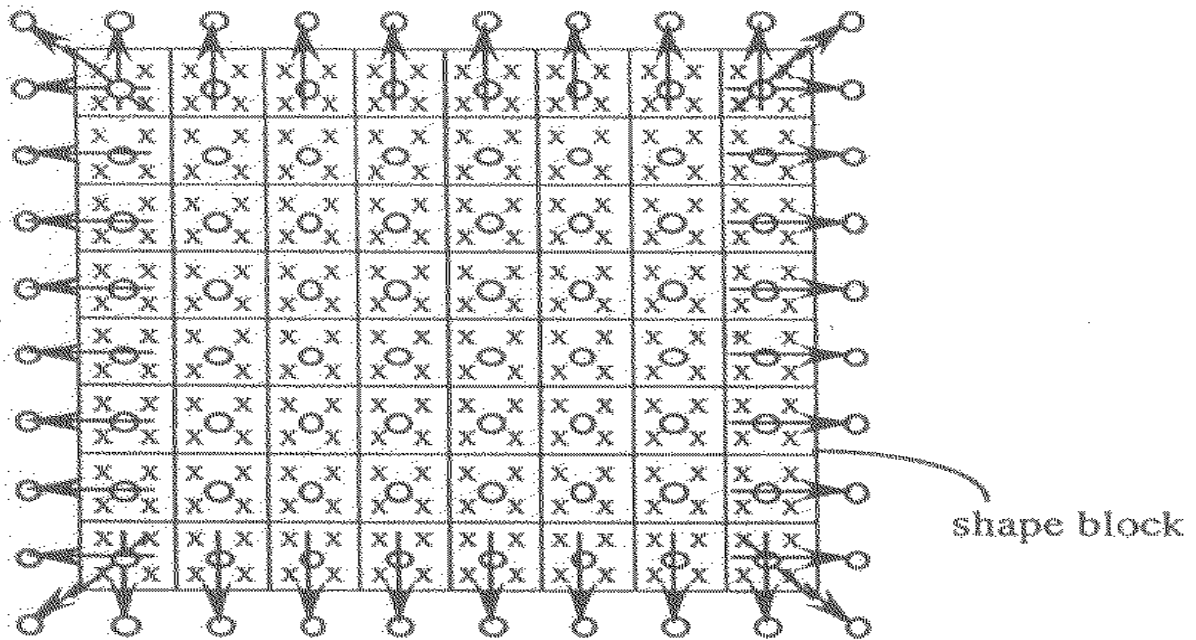
(c9) (c3) , ,

(c10) , 가 .

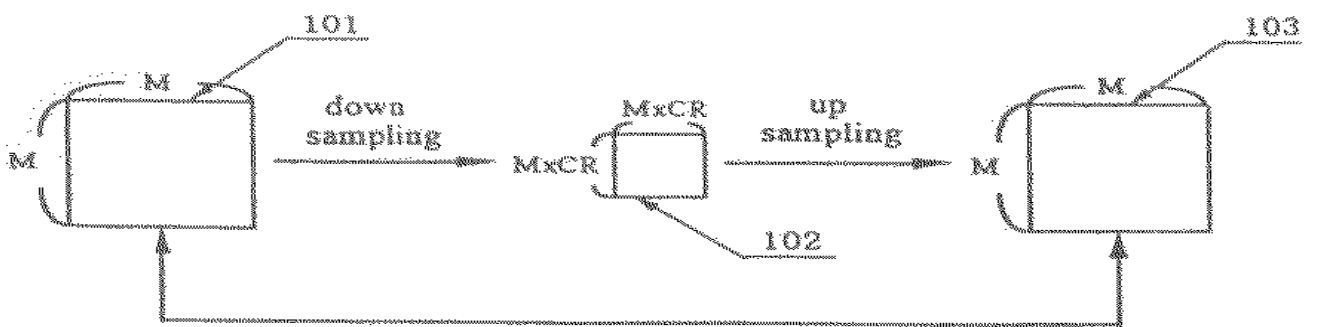
1



(a)



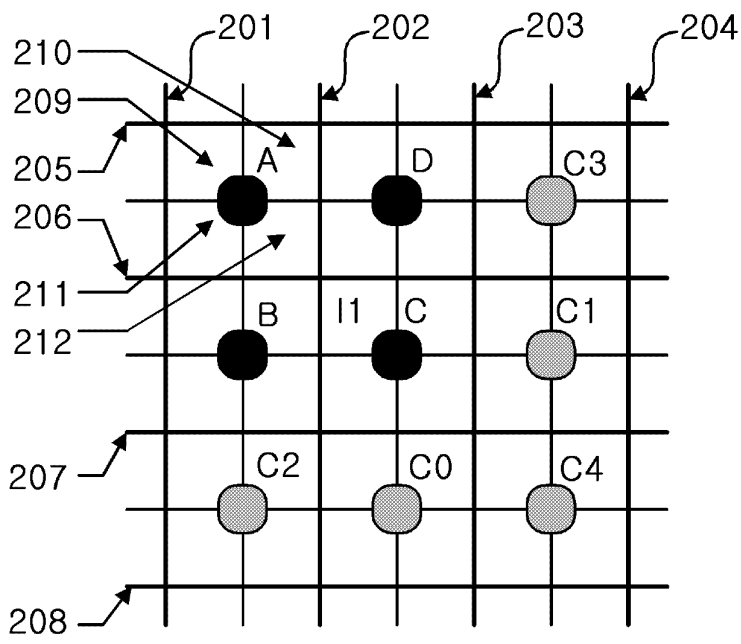
(b)



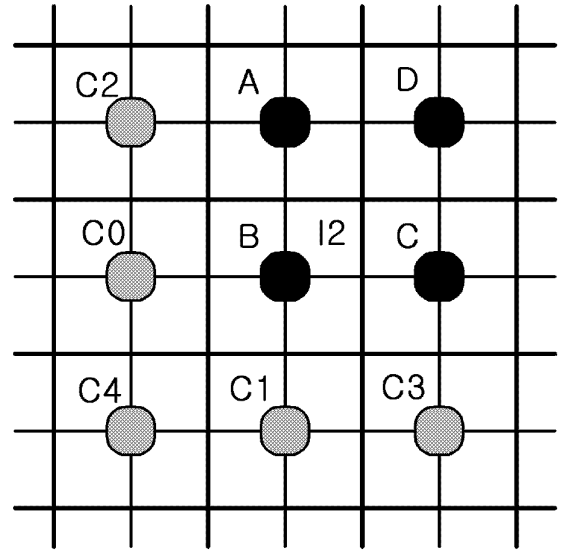
conversion error

(c)

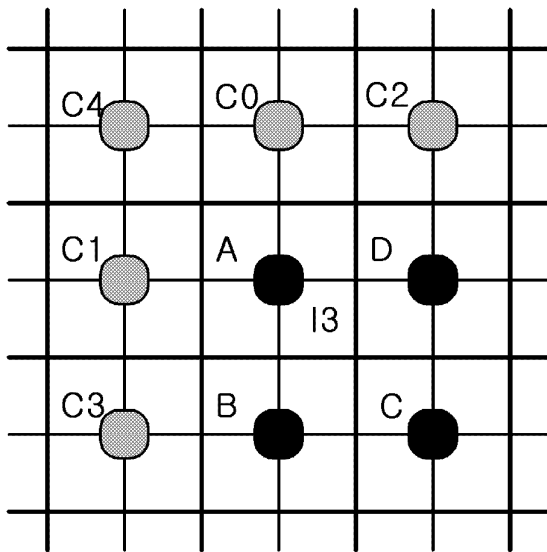
2



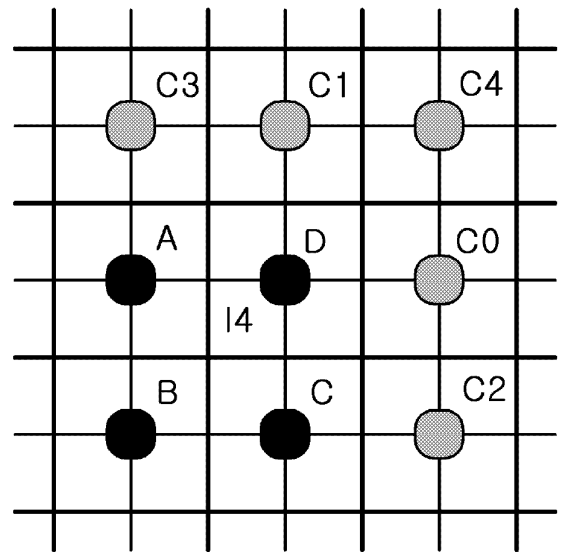
(a)



(b)

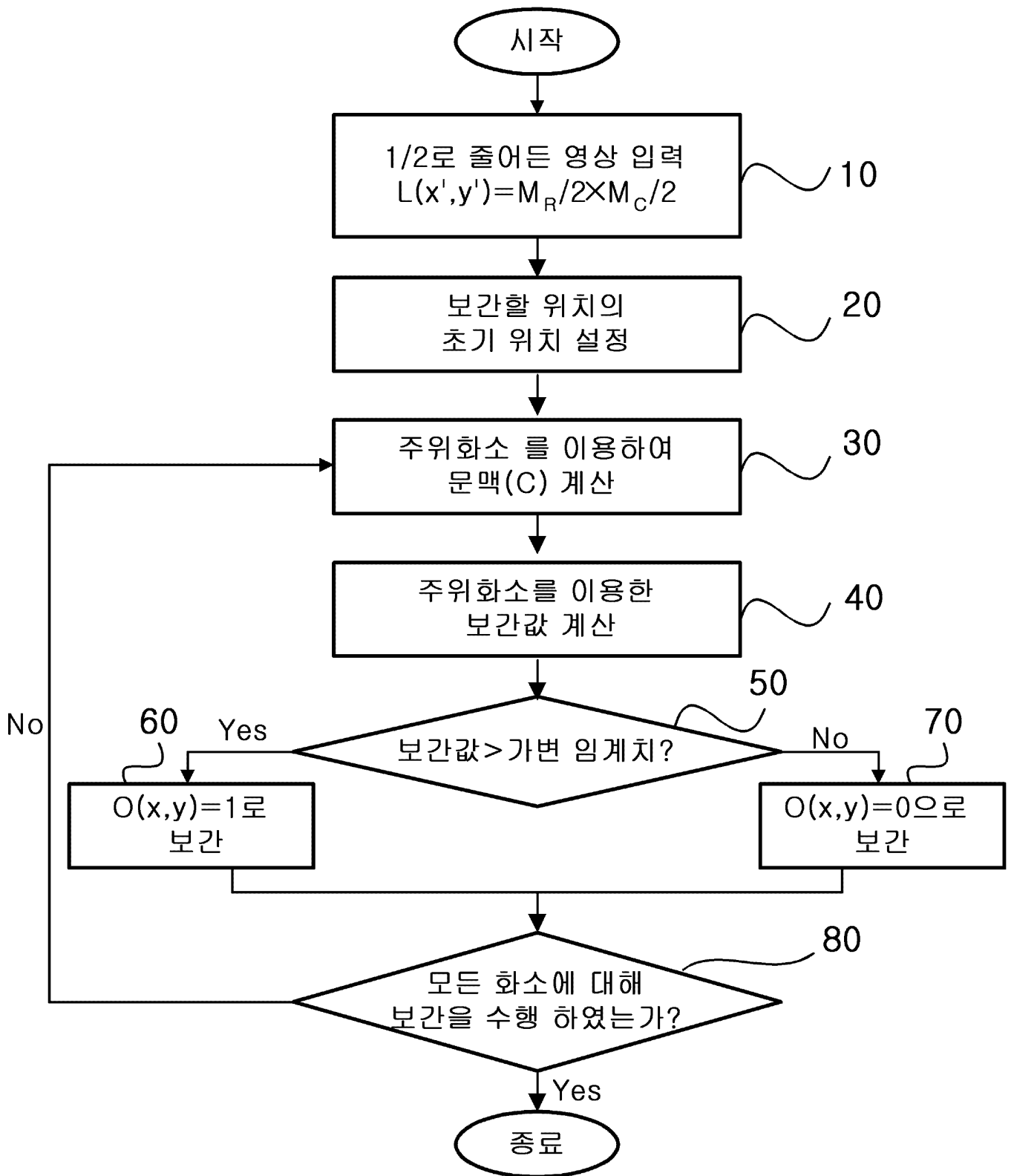


(c)

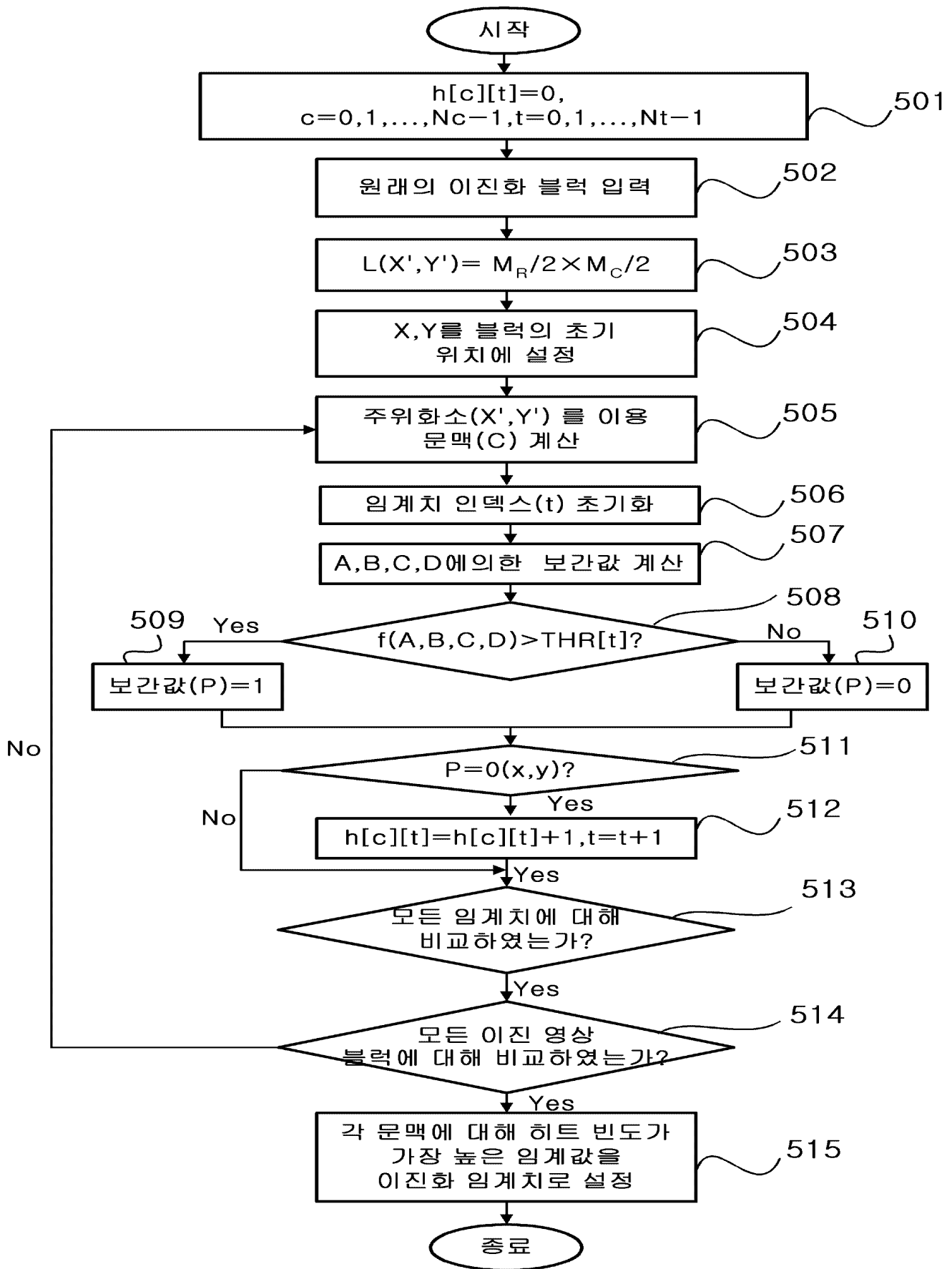


(d)

3



4



A black rectangular frame containing the text "Welcome to MPEG World" in a white, italicized, serif font. The text is centered and occupies most of the frame.

*Welcome to
MPEG World*

(a) Logo 이진 영상 (원영상)

A black rectangular frame containing the text "Welcome to MPEG World" in a white, pixelated, sans-serif font. The text is centered and occupies most of the frame.

**Welcome to
MPEG World**

(b) 기존의 방법 (비트량 : 1846 bits)

A black rectangular frame containing the text "Welcome to MPEG World" in a white, italicized, serif font, identical to the original logo. The text is centered and occupies most of the frame.

*Welcome to
MPEG World*

(c) 제안한 방법 (비트량: 1854 bits)