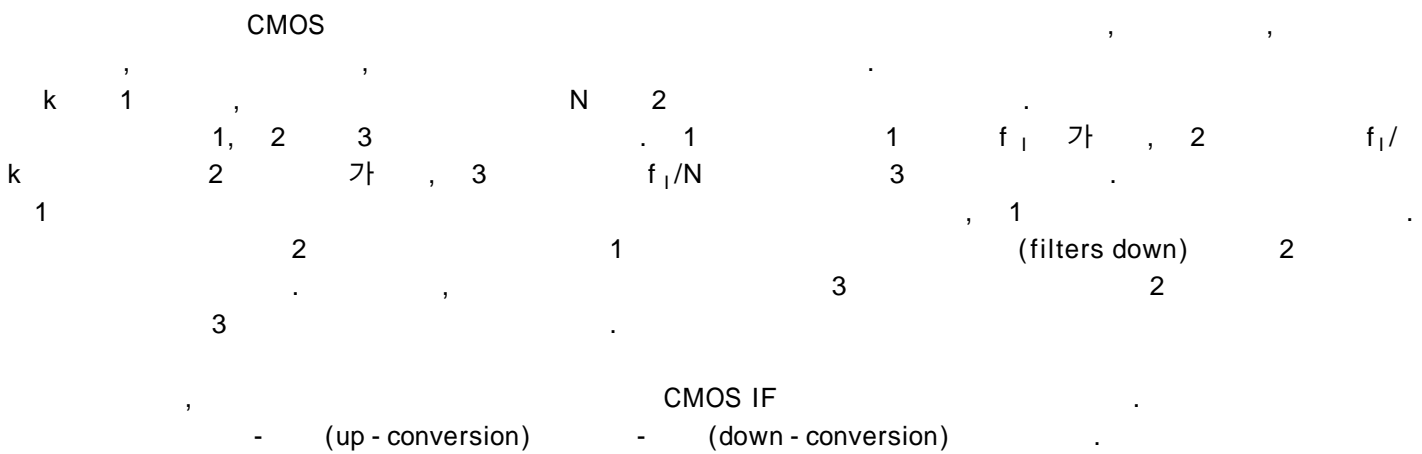
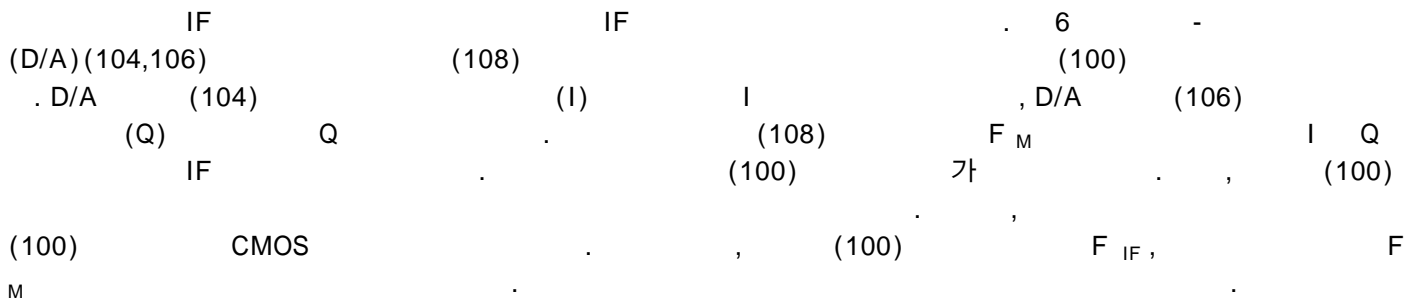




CMOS (22), (24), (20) (29), (26), (29)  
 k 1, N 2 (29)  
 $f_1$  가 , 2 (26) 1, 2 3 1 1  
 .  $f_1/k$  2 가 , 3  $f_1/N$  3  
 (22), (24) (28) 1, 2  
 3  
 2

CMOS

가 가  
 (10) 1 (10)  
 - (A/D)(12) A/D(12)  
 (13) (14) CMOS A/D(12) CMOS  
 CMOS (10)  
 A/D(12) 8 F  $F_M$  (10)  
 (10)  $F_{IF}$  F  
 A/D IF A/D  
 - A/D 가  
 ( 64 ) 가



- 1
- 2
- 3
- 4
- 5
- 6

가

A. IF

2 (IF) (20) . IF (20) - (22),  
 - (24), (26), (28) (29) .  
 (10) , IF (20) CMOS , (10)  
 . IF (20) (21)

B. -

- (22) (19) IF -  
 (24) (23) 가  
 VLSI IF A/D , IF 가  
 - (22) A/D , 가 -  
 (22) - (24), (26), (28) (29)  
 CMOS IF (20) 가  
 6 , (22) , 8 1  
 2 , - (22) , 1  $F_s$   
 IF ,  $F_s/k$  2  $F_s$   $F_s/k$  (20)가  
 (22) 가 k=4 (26)

- (22) , Oversampling Me  
 thods for A/D and D/A Conversion in OVERSAMPLING DELTA - SIGMA DATA CONVERTER: THEORY, DES  
 IGN, AND SIMULATION(1992) James C. Candy Gabor C.가 -

C. -

(23) - (22) - (24) .  
 가  $F_s/k$  2 (24) (I) (Q) , - (24) IQ  
 (25,27)

(24)  
 (28) FIR (30)  $F_s$  (28) (FIR) (30)  
 $F_s/N_i$ ,  $N_i$ ,  $i$  3  
 (26) , FIR (30)  
 가 VLSI (32) (3)  
 (canonic - signed - digits) . FIR (30)  
 2) IQ , (33) ( )

D.

(26)  $F_s$  1 (29)  $F_s/k$  IF (20)  $F_s/N$  3  
 가 , IF (20)가 IF (20)  
 $F_s$  ,  $F_s$   $F_{IF}$  (1) ,  $F_s$   $F_{IF}$

1  
 $F = (4F_{IF}) / (2k - 1)$  , k

k  $F_{IF}$  IF (20) 3  
 k IR (20) . k가  
 가 , 가  
 가 IF (20) (21) ,  
 가 , IF (20) . 4 k (29)  
 , 2  $F/k$

3  $F_s/N$   $F_{symbol}$  IF (20)  
 $i$  ,  $N_i$  (2) .  $F_s$  (29)

2  
 $N_i = F_s / F_{symbol}$  , i  
 k 1  $N_i$  100 가 , FIR k  $N_i$  (D  
 (29) . (29) (40) / (26)  
 SP)(42) . (29) k  $N_i$

E. CMOS

4 OS IF (50) IF (50) CM  
 (D/A)(56) (21) , (52), (54) -  
 (digitally up converts) , IF (50) I Q  
 CMOS . IF (50) 가

(51) I Q (58) (57,59) (IQ)  
 G=4 (60) sin(  
 (trigonometric approximations)  $F_s/B$   
 (60) (26)  $F_s/(G*B)$  G B  
 (60) 가 (62) (62)  $F_s$   
 (61,63) (62) Oversampl

ing Methods for A/D and D/A Conversion in OVERSAMPLING DELTA - SIGMA DATA CONVERTER: THEOR  
 Y, DESIGN, AND SIMULATION(1992) James C. Candy Gabor C.가

(54) (61,63) I - Q - (54)  
 $F_s/L$  6 (64) I -  
 Q - IF  $F_s/2$  가 D/A(56) D/A(56)  
 circuit)(66) (67) IF (sample - and - hold

IF (50) (29) (26)  
 $F_s/B$  4 ,  $F_s/(G*B)$  5 ,  $F_s/L$  6  
 $F_s/2$  7  $F_s$  IF  $F_s$   
 ( )  $F_s$  가 (60)  $F_{IF}$   
 $F_{IF}$   $F_N$  가  $F_s = F_{IF}$

4 B (67)  $F/B$  가  
 (29) 4  $F/B$  가  
 $G_i$   $F_{Ssymbol}$   $F_s/(G_i*B)$  i IF (50)  
 $G_i$  (3)

3

$G_i = F_s / (F_{symbol} * B)$

,  $G_i$  64 - 128 가  $G_i/$  (29)  
 , 5

L - - (66) 6 ,  $F_s/L$   
 L ,  
 24 - 36 L (29) , 6  
 가

(29) (40) / (DSP)(42) ( 2).  
 (29) B,  $G_i$  L (26)

E. CMOS IF

5 IF (20) IF (50) ,

F.

가 가  
 CMOS 가  
 가  
 가 가  
 가 가  
 가

(57)

1.

CMOS

$k$  1  $N$  2  
 ;  
 $f_1/N$  3 , 1  $f_1$  3 1 ,  $f_1/k$  2 2  
 1 ; 1  
 2 1 (downconverter); (mixing down) 2  
 3 2 3

CMOS

2.



1 ;

2 1 (mixing down) 2 ;

3 2 3

4.

(monolithic) CMOS IF

1, 2, 3, 4 5 N, 3 1 k

4 B, 5 L -;

1,2,3,4,5 6 가, 3 1 f<sub>1</sub> 가, 2 4

f<sub>1</sub>/k f<sub>1</sub>/B 4 가, 5 f<sub>1</sub>/N f<sub>1</sub>/GB 5 가,

6 f<sub>1</sub>/L 6 가 -;

1 1 IF 1

2 1 (mixing down) 2 ;

3 2 3 ;

4 5 4 5 ;

6 4 (mixing up) 6 ;

6 2 IF

5.

(monolithic) CMOS

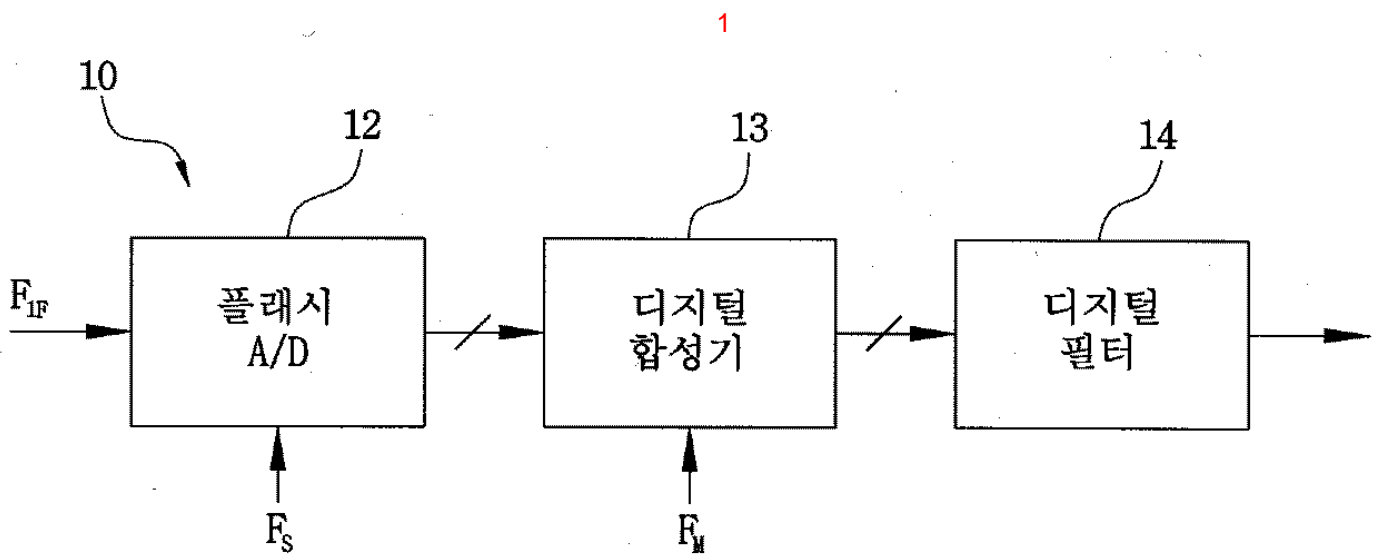
1, 2, 3, 4 5 - 1

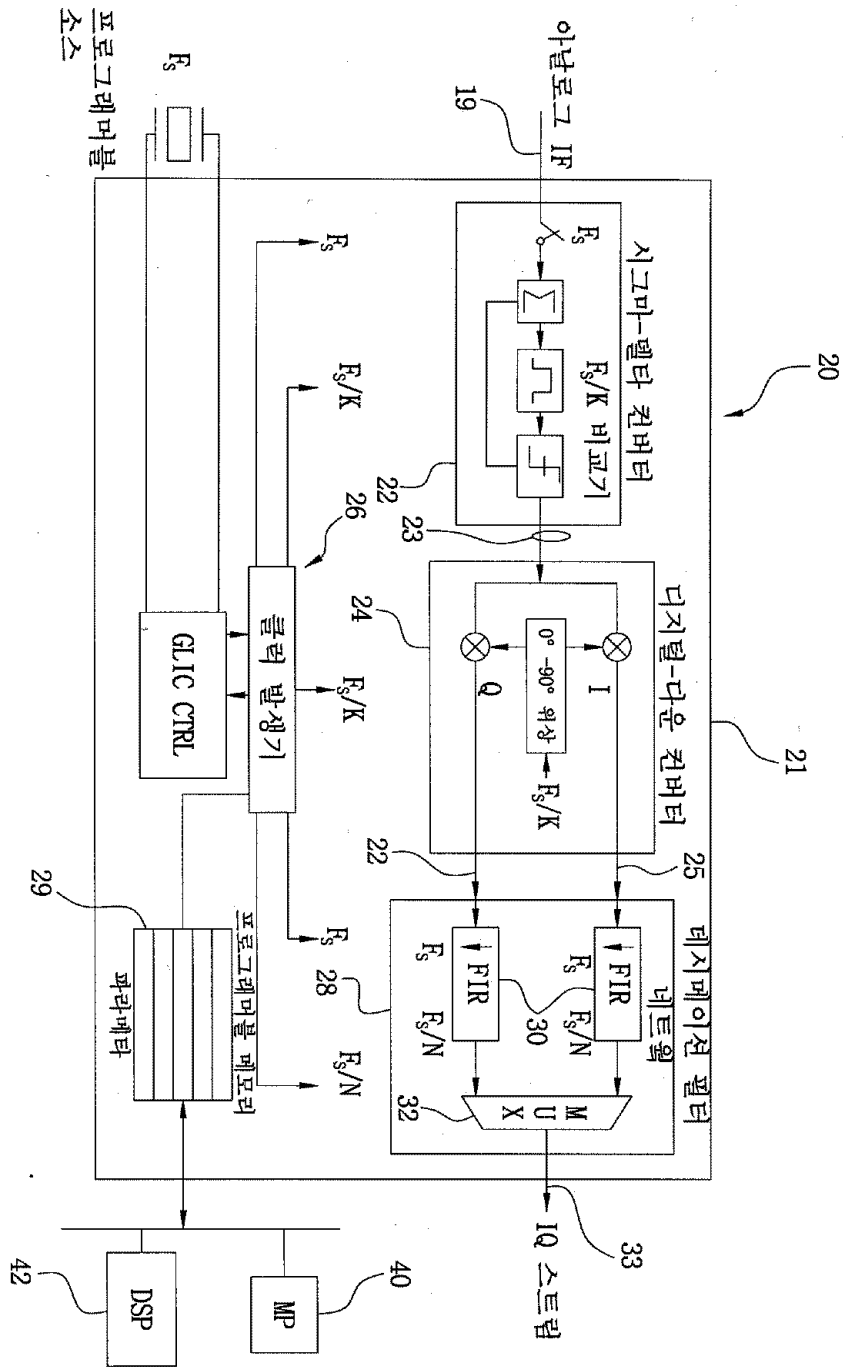
G k, 4 B N, 5 3 L

-;

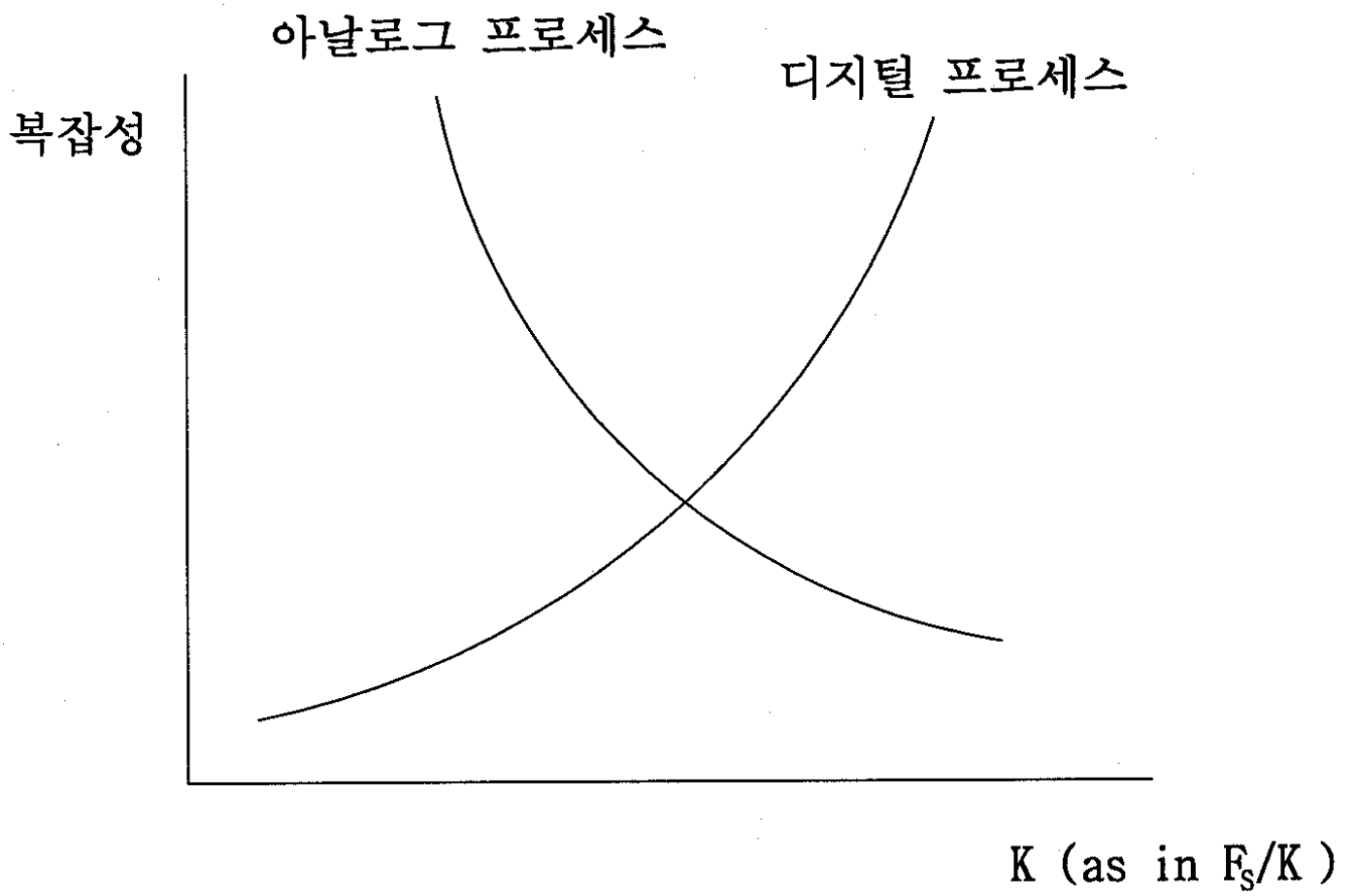
$f_1/L$       1      가      ,      1,2      3       $f_1/GB$       2      가      ,      3       $f_1/B$   
 63      가      - ;  
 1      2      ;      1      2  
 3      2      (mixing up)      3  
 3

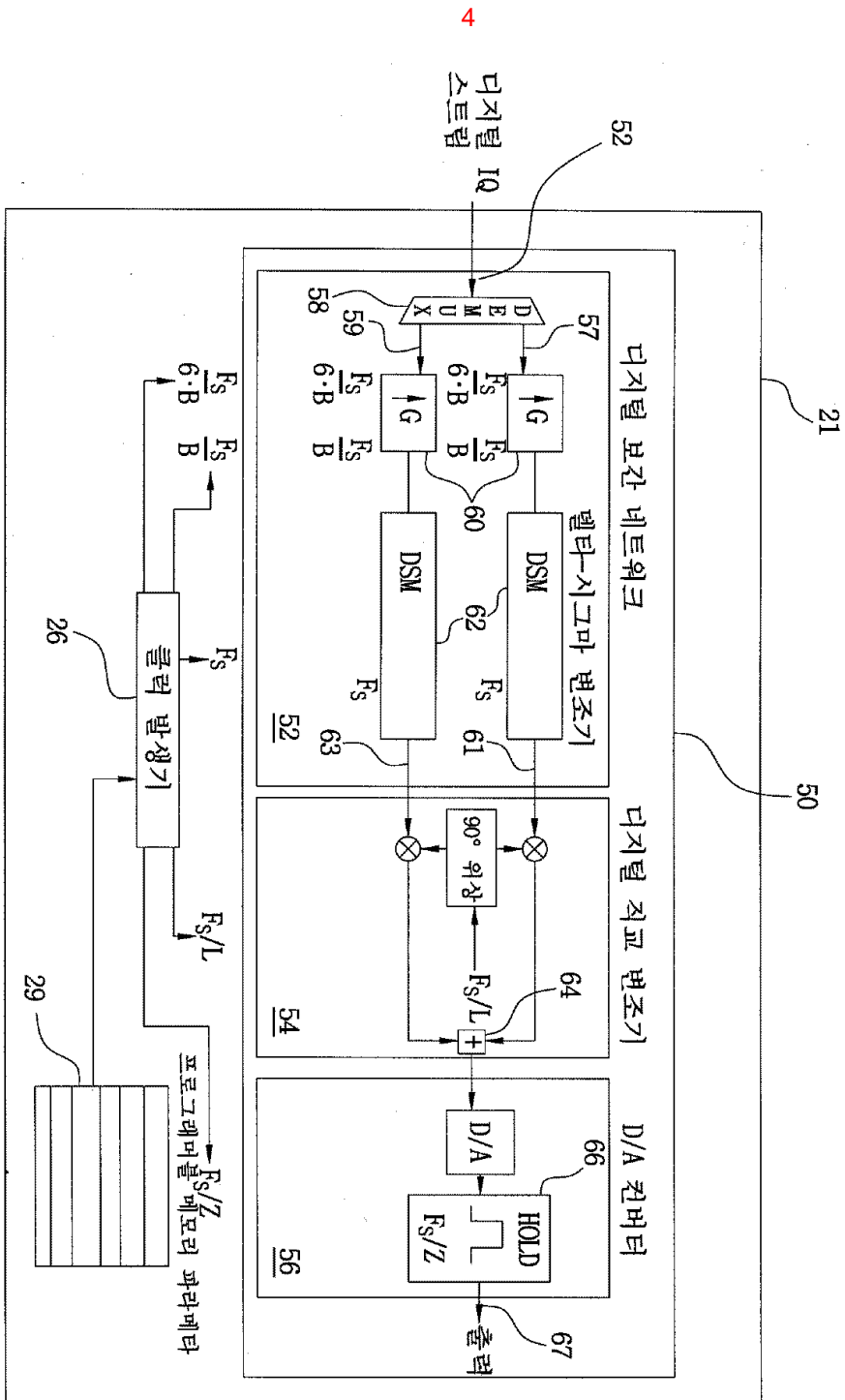
(monolithic) CMOS



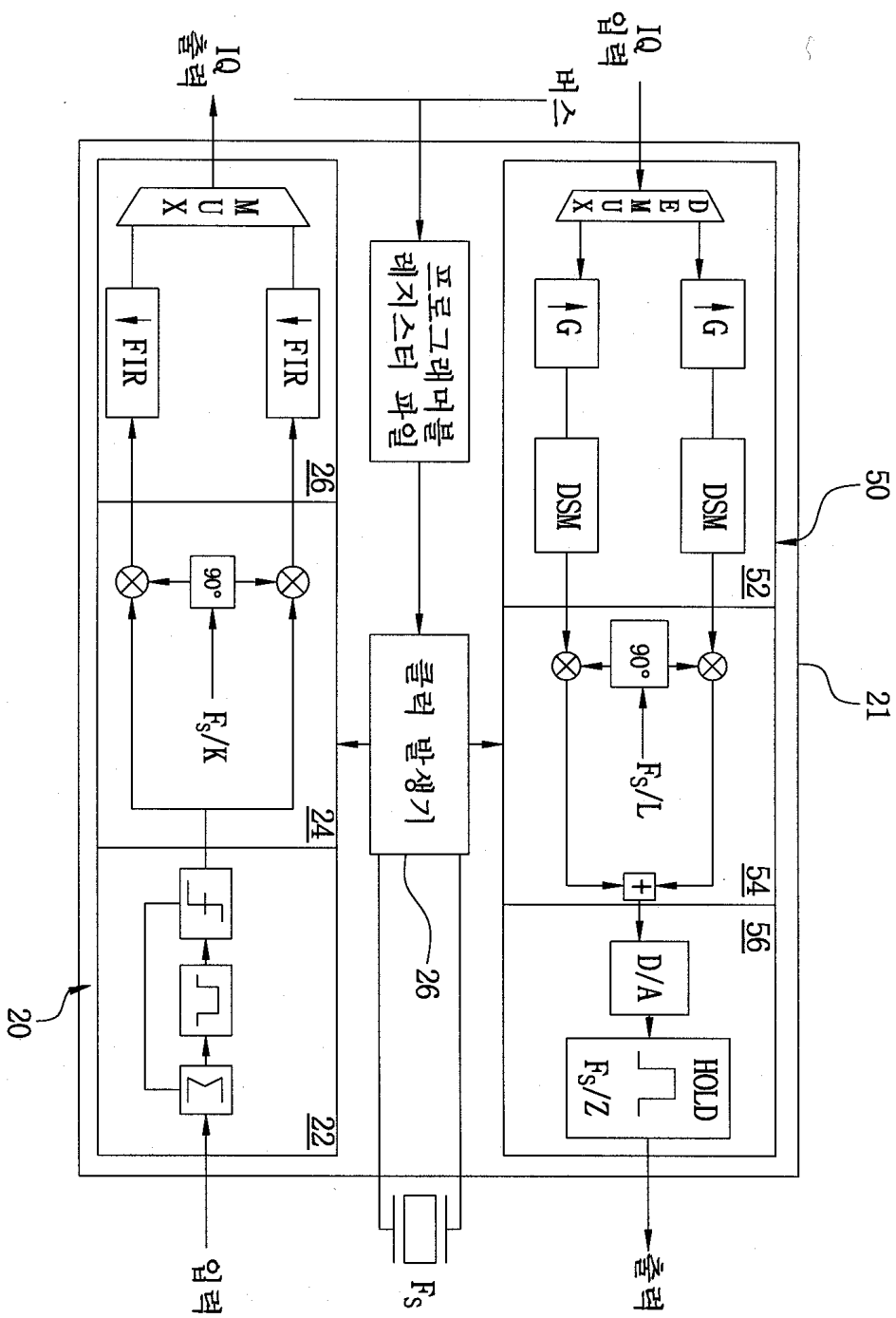


3





5



6

