FIG. 1A

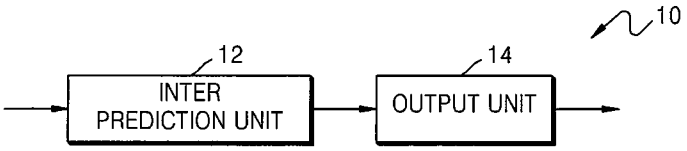

10
12
INTER PREDICTION UNIT
14
OUTPUT UNIT

FIG. 1B

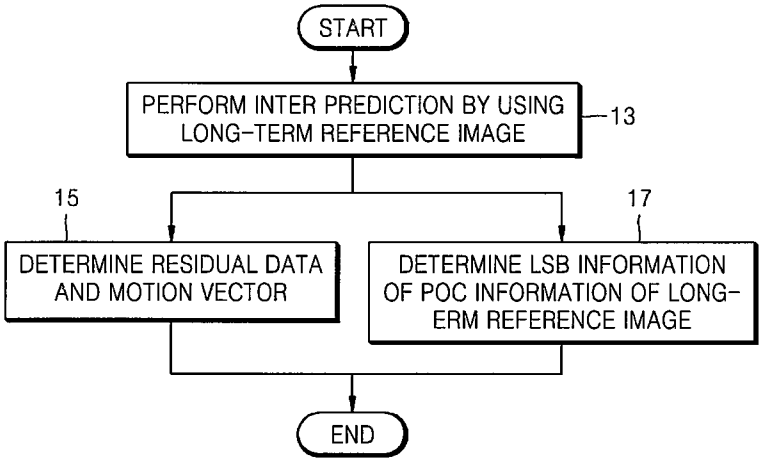

START
PERFORM INTER PREDICTION BY USING LONG-TERM REFERENCE IMAGE
13
15
17
DETERMINE RESIDUAL DATA AND MOTION VECTOR
DETERMINE LSB INFORMATION OF POC INFORMATION OF LONG-ERM REFERENCE IMAGE
END

FIG. 2A

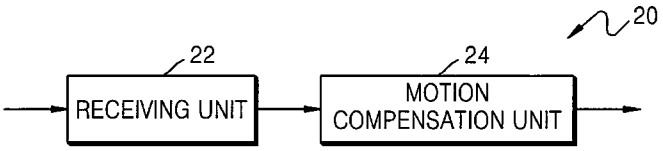

20
22
24
RECEIVING UNIT
MOTION COMPENSATION UNIT

FIG. 2B

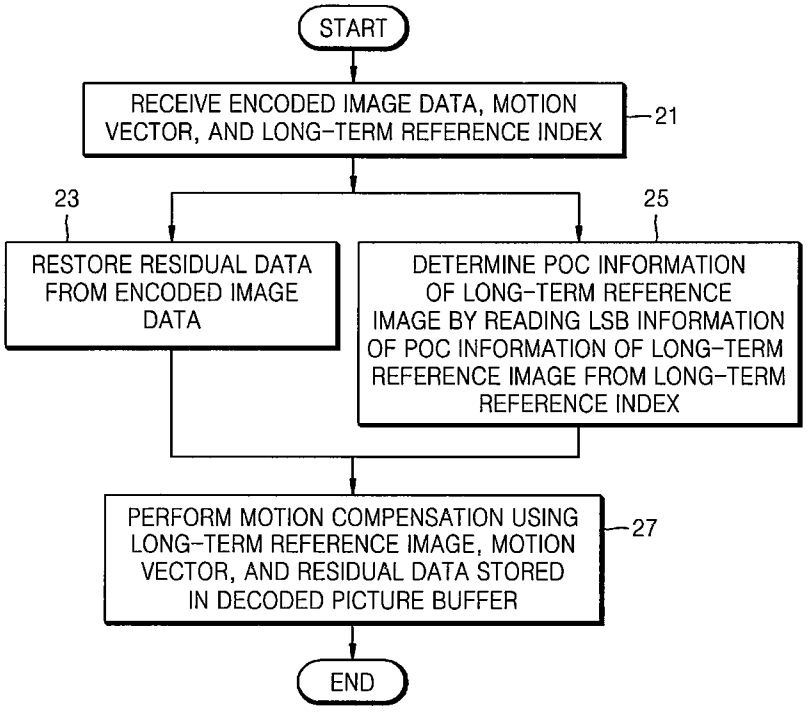

START
RECEIVE ENCODED IMAGE DATA, MOTION VECTOR, AND LONG-TERM REFERENCE INDEX
21
23
25
RESTORE RESIDUAL DATA FROM ENCODED IMAGE DATA
DETERMINE POC INFORMATION OF LONG-TERM REFERENCE IMAGE BY READING LSB INFORMATION OF POC INFORMATION OF LONG-TERM REFERENCE IMAGE FROM LONG-TERM REFERENCE INDEX
PERFORM MOTION COMPENSATION USING LONG-TERM REFERENCE IMAGE, MOTION VECTOR, AND RESIDUAL DATA STORED IN DECODED PICTURE BUFFER
27
END

FIG. 3

POC	0	1	2	···	13	14	15	16	17	18	···	30	31	32	33	34	···	47	48
LSB	0	1	2	···	13	14	15	0	1	2	···	14	15	0	1	2	···	15	0
MSB	0	0	0	···	0	0	0	1	1	1	···	1	1	2	2	2	···	2	3

FIG. 4

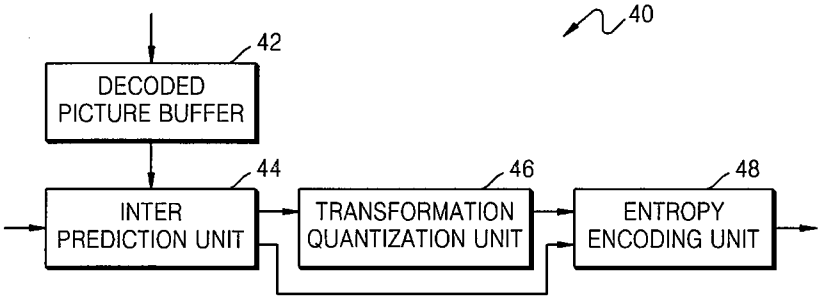


FIG. 5

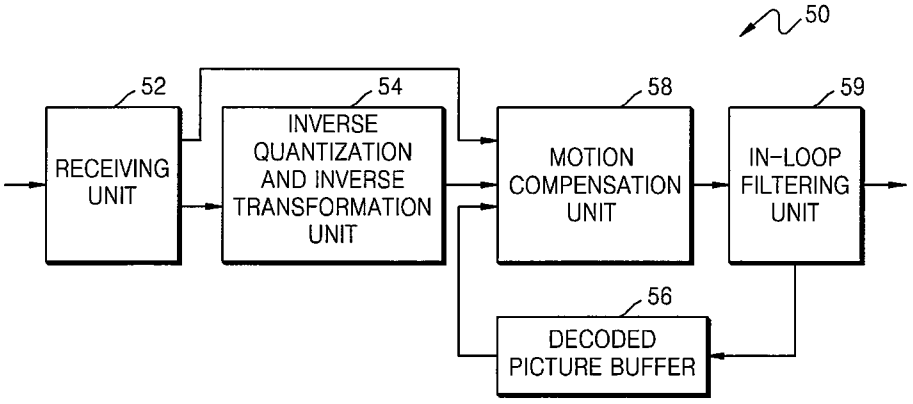


FIG. 6

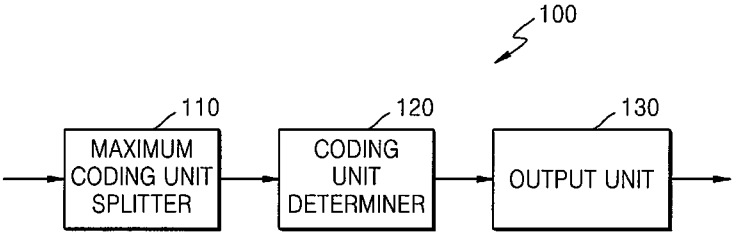

100
110
MAXIMUM CODING UNIT SPLITTER
120
CODING UNIT DETERMINER
130
OUTPUT UNIT

FIG. 7

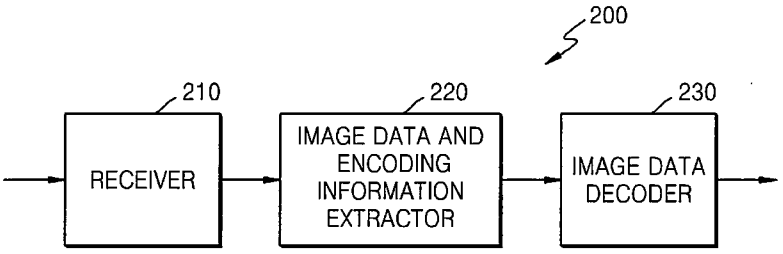

200
210
RECEIVER
220
IMAGE DATA AND ENCODING INFORMATION EXTRACTOR
230
IMAGE DATA DECODER

FIG. 8

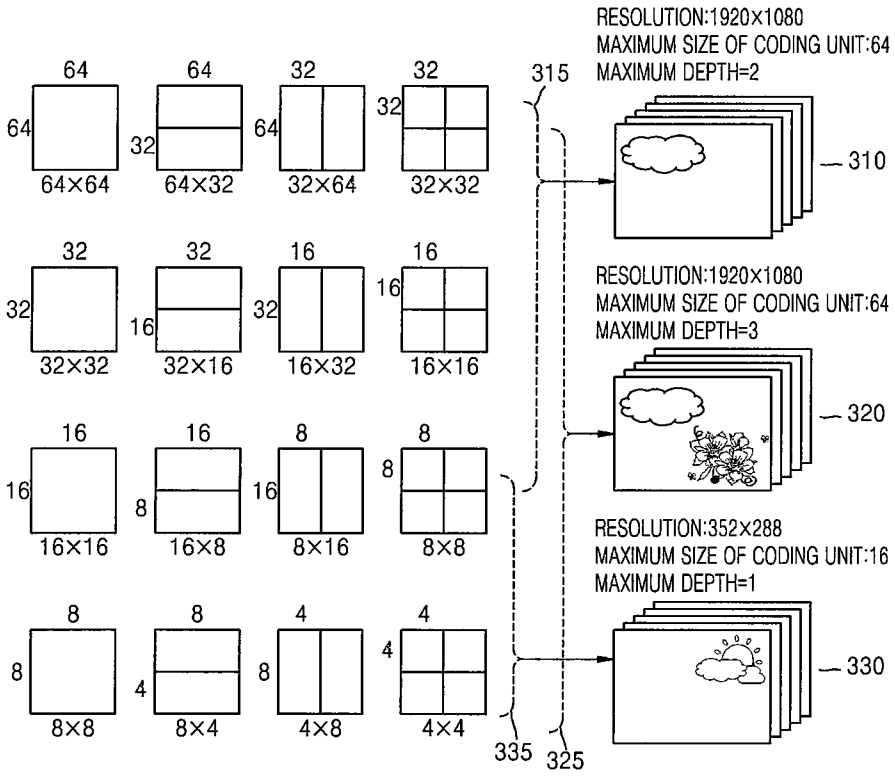

RESOLUTION:1920x1080
MAXIMUM SIZE OF CODING UNIT:64
MAXIMUM DEPTH=2
315
64
64
64x64
64
32
64x32
32
64
32x64
32
32
32x32
310
32
32
32x32
32
16
32x16
16
32
16x32
16
16
16x16
RESOLUTION:1920x1080
MAXIMUM SIZE OF CODING UNIT:64
MAXIMUM DEPTH=3
320
16
16
16x16
16
8
16x8
8
16
8x16
8
8
8x8
RESOLUTION:352x288
MAXIMUM SIZE OF CODING UNIT:16
MAXIMUM DEPTH=1
330
8
8
8x8
8
4
8x4
4
8
4x8
4
4
4x4
335
325

FIG. 9

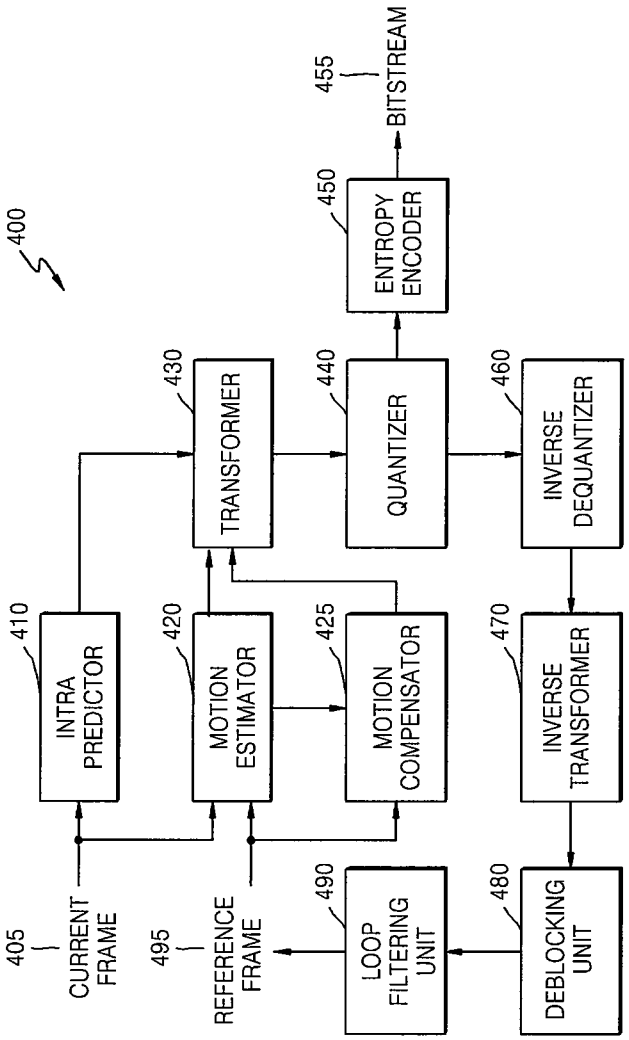

400
405
CURRENT FRAME
410
INTRA PREDICTOR
420
MOTION ESTIMATOR
425
MOTION COMPENSATOR
430
TRANSFORMER
440
QUANTIZER
450
ENTROPY ENCODER
455
BITSTREAM
460
INVERSE DEQUANTIZER
470
INVERSE TRANSFORMER
480
DEBLOCKING UNIT
490
LOOP FILTERING UNIT
495
REFERENCE FRAME

FIG. 10

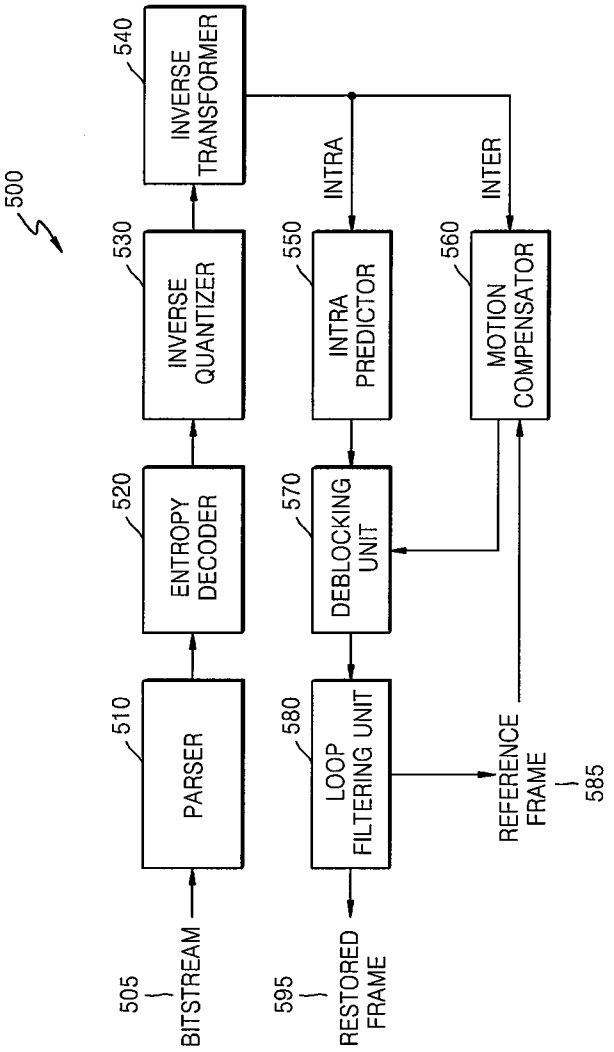

500
505
BITSTREAM
510
PARSER
520
ENTROPY DECODER
530
INVERSE QUANTIZER
540
INVERSE TRANSFORMER
550
INTRA PREDICTOR
560
MOTION COMPENSATOR
570
DEBLOCKING UNIT
580
LOOP FILTERING UNIT
585
REFERENCE FRAME
595
RESTORED FRAME
INTRA
INTER

FIG. 11

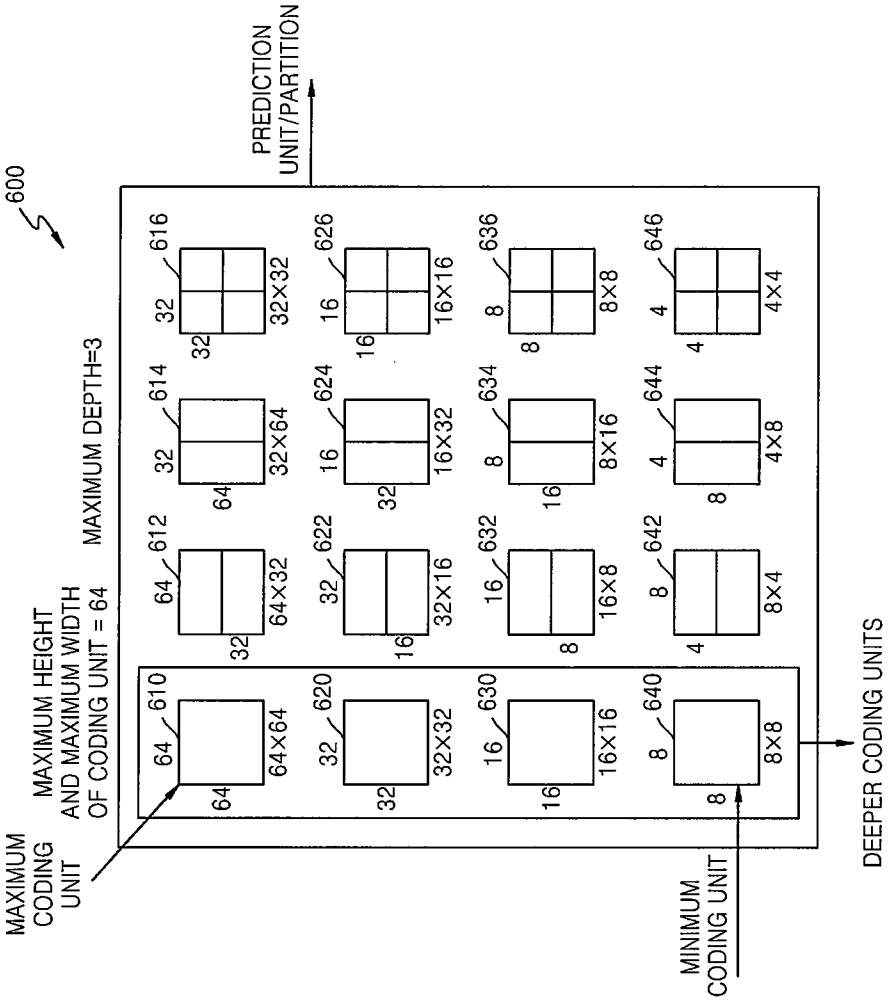

600
PREDICTION UNIT/PARTITION
MAXIMUM HEIGHT AND MAXIMUM WIDTH OF CODING UNIT = 64
MAXIMUM DEPTH=3
MAXIMUM CODING UNIT
MINIMUM CODING UNIT
DEEPER CODING UNITS
610
64×64
620
32×32
630
16×16
640
8×8
612
64×32
622
32×16
632
16×8
642
8×4
614
32×64
624
16×32
634
8×16
644
4×8
616
32×32
626
16×16
636
8×8
646
4×4

FIG. 12

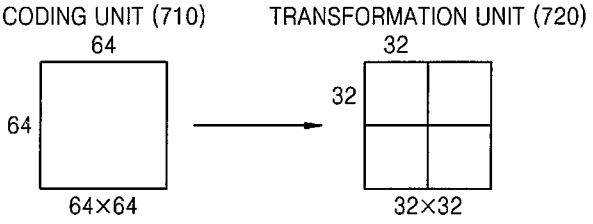
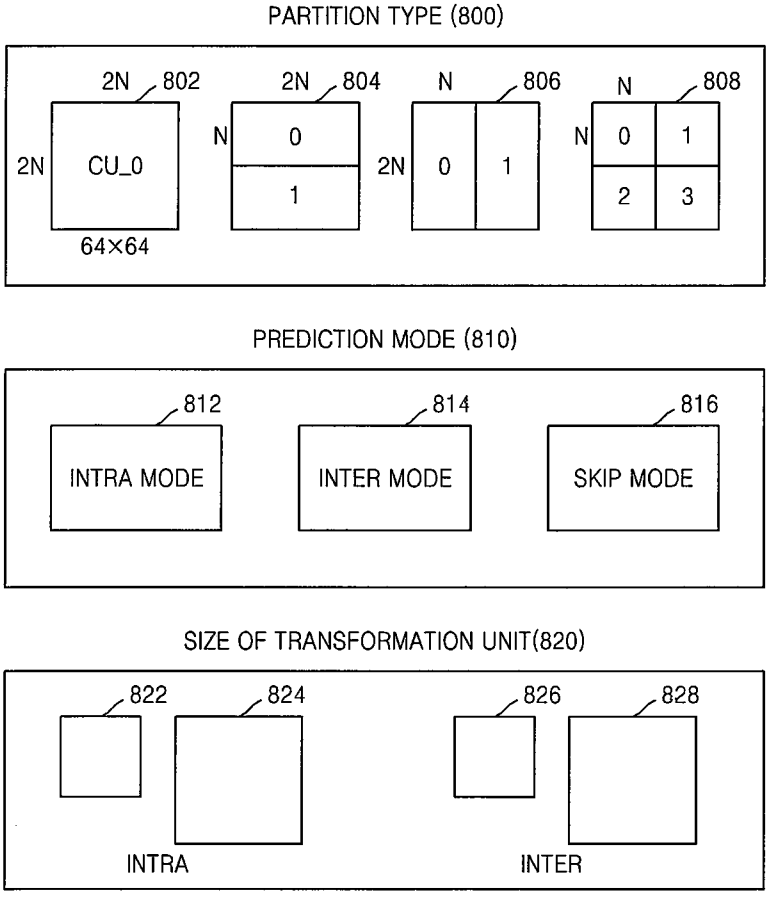

CODING UNIT (710)
TRANSFORMATION UNIT (720)
64
64
64×64
32
32
32×32

FIG. 13


PARTITION TYPE (800)
2N
802
CU_0
64×64
2N
804
N
0
1
N
806
2N
0
1
N
808
N
0
1
2
3
PREDICTION MODE (810)
812
INTRA MODE
814
INTER MODE
816
SKIP MODE
SIZE OF TRANSFORMATION UNIT(820)
822
824
826
828
INTRA
INTER

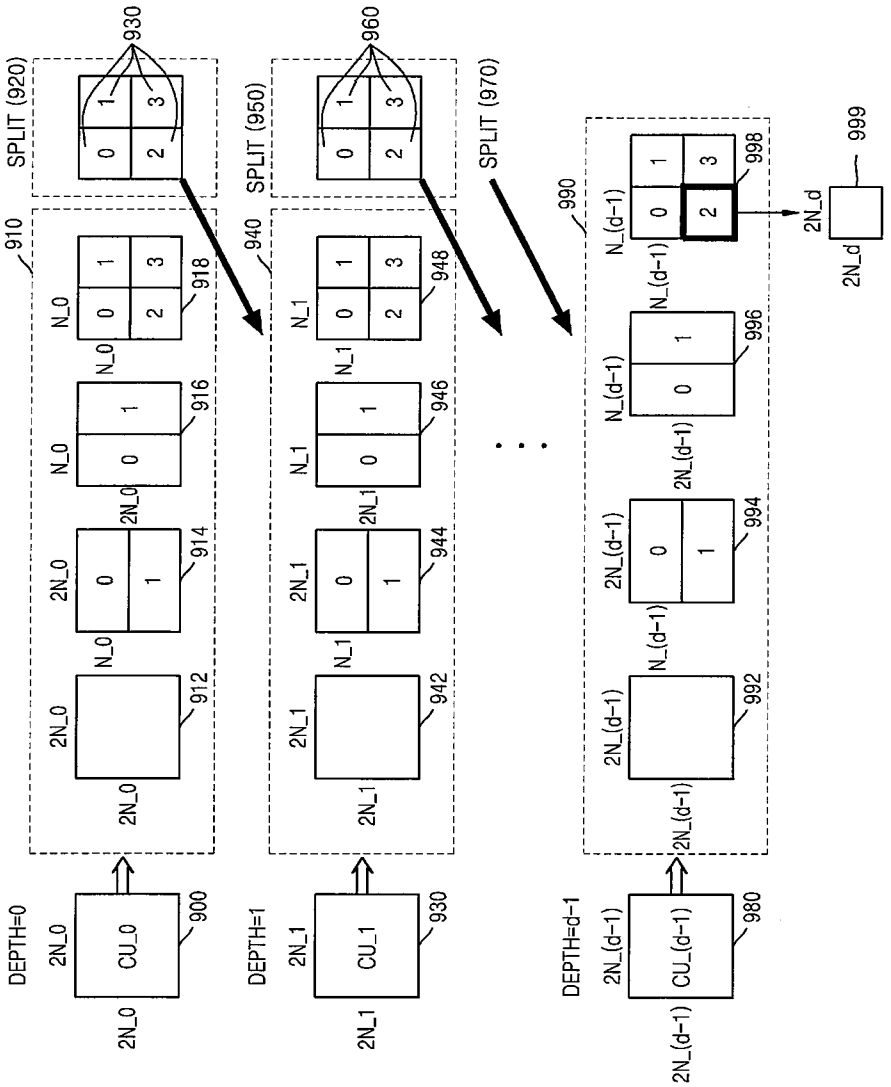
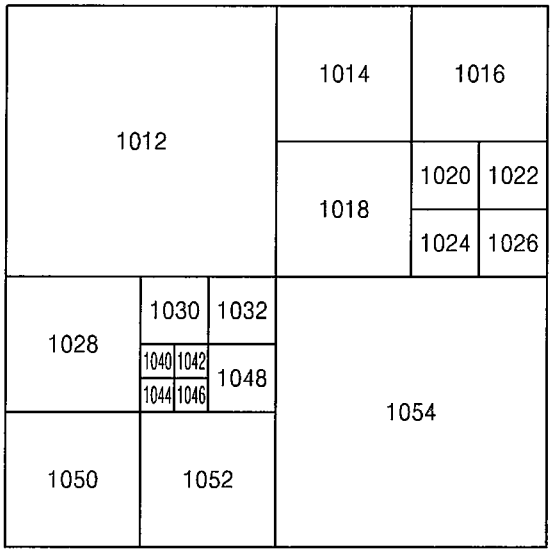

DEPTH=0
DEPTH=1
DEPTH=d-1
CU_0
CU_1
CU_(d-1)
900
930
980
910
940
990
SPLIT (920)
SPLIT (950)
SPLIT (970)
930
960
912
914
916
918
942
944
946
948
992
994
996
998
999
2N_0
N_0
2N_1
N_1
2N_(d-1)
N_(d-1)
2N_d

FIG. 14

FIG. 15



CODING UNIT (1010)

FIG. 16

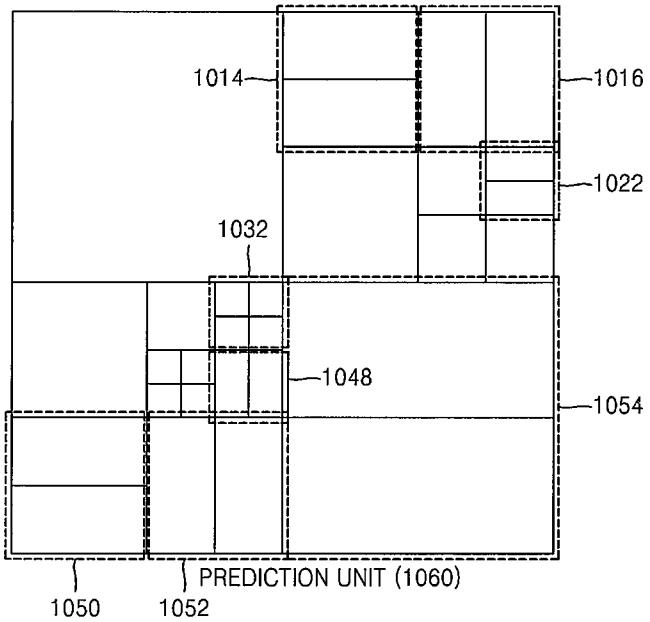


FIG. 17

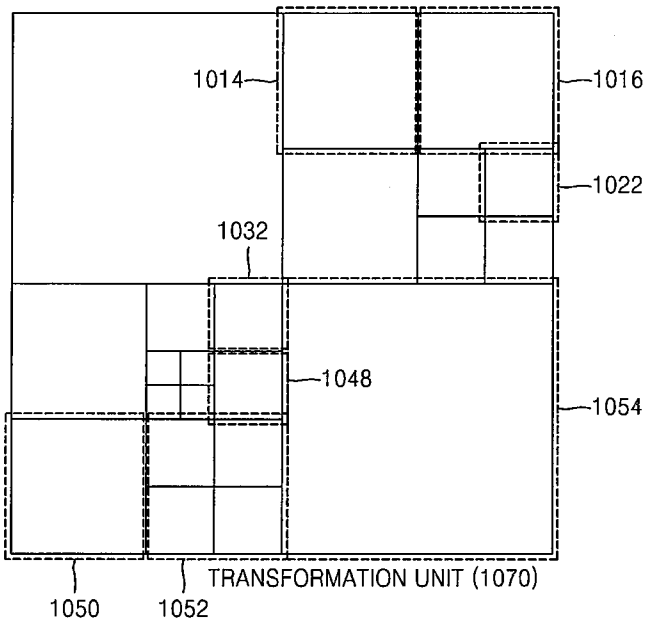

1014
1016
1022
1032
1048
1054
TRANSFORMATION UNIT (1070)
1050
1052

FIG. 18

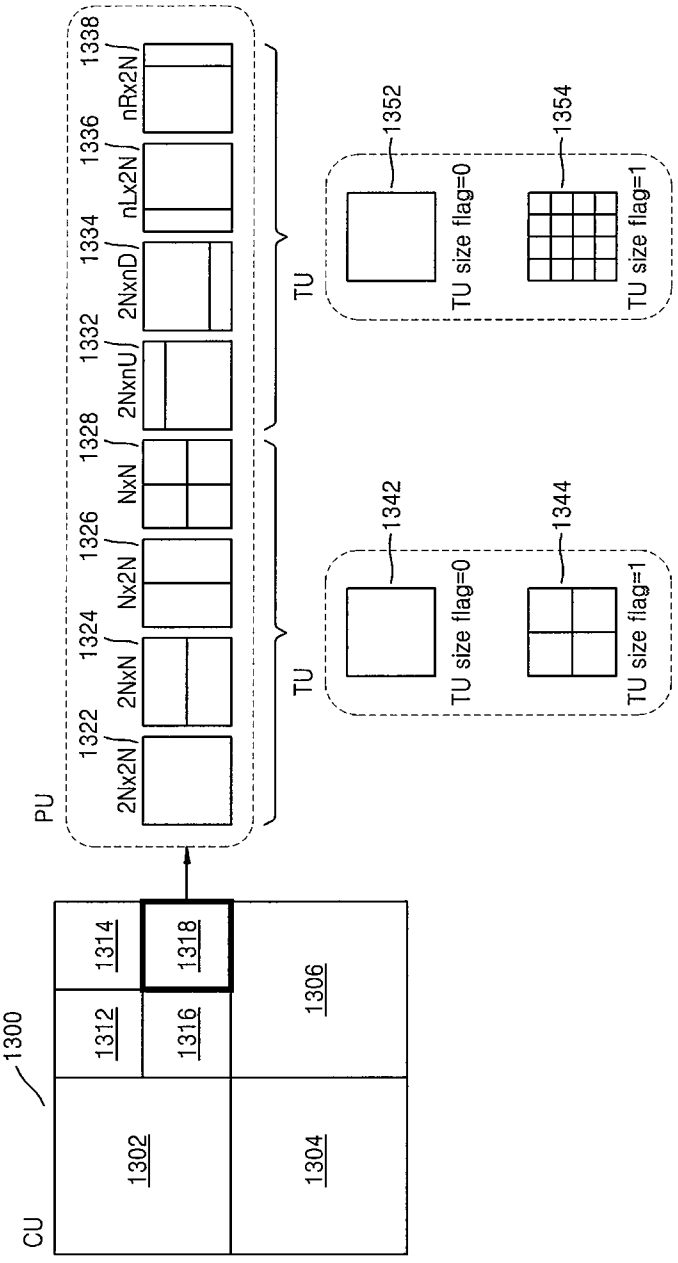

CU
1300
1302
1304
1306
1312
1314
1316
1318
PU
2Nx2N
1322
2NxN
1324
Nx2N
1326
NxN
1328
2NxnU
1332
2NxnD
1334
nLx2N
1336
nRx2N
1338
TU
TU
1342
TU size flag=0
1344
TU size flag=1
1352
TU size flag=0
1354
TU size flag=1

FIG. 19

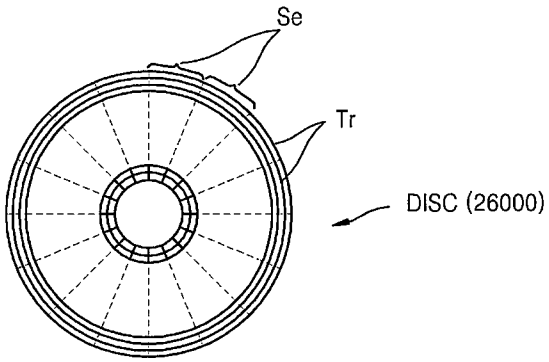


FIG. 20

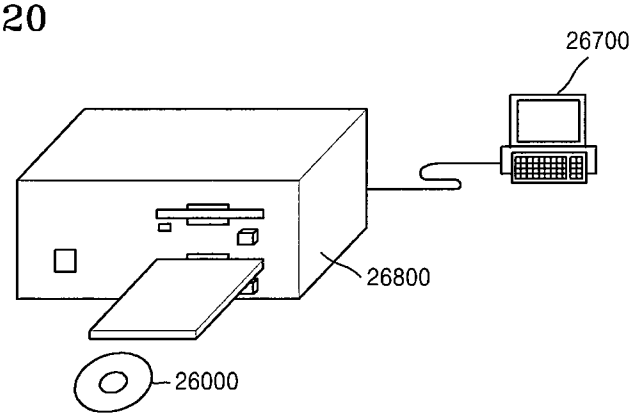


FIG. 21

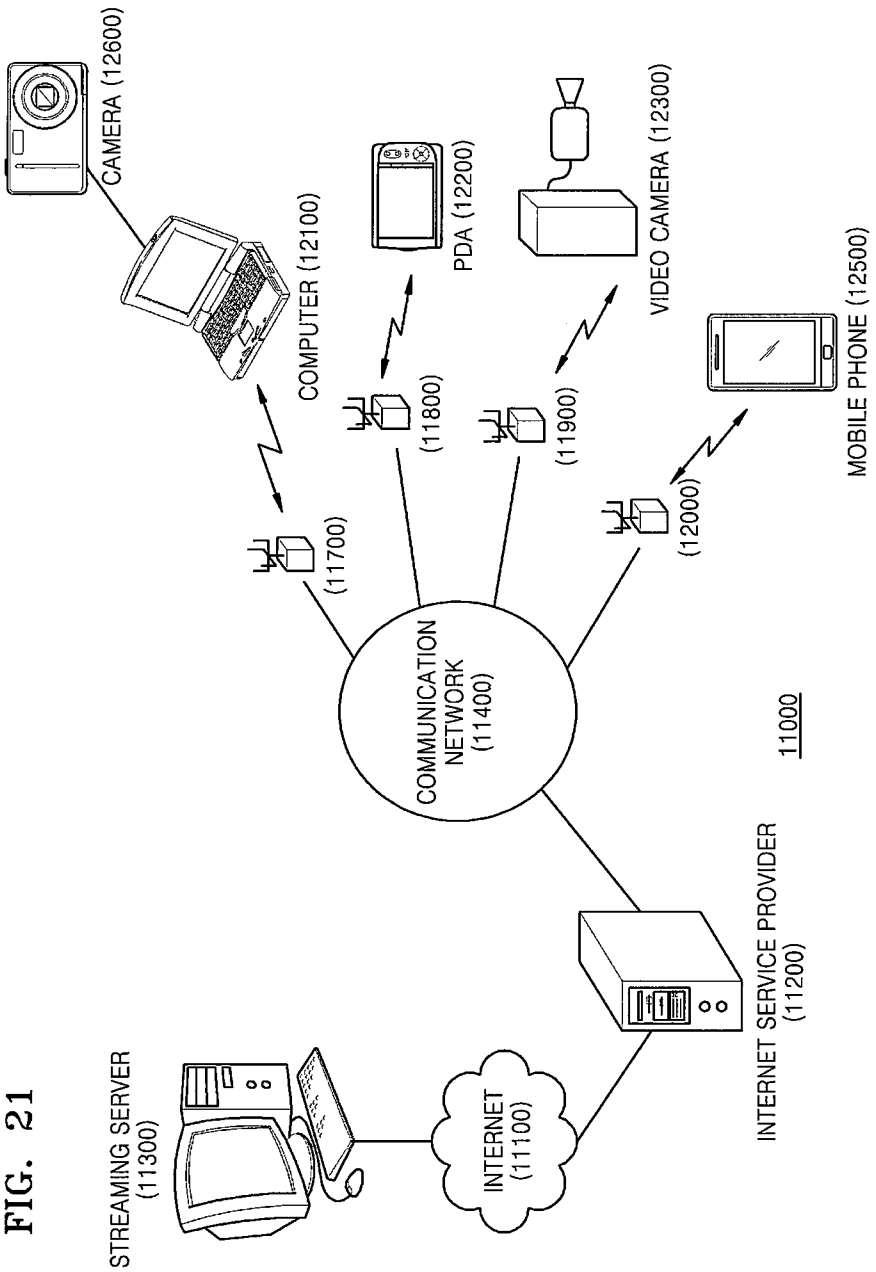

CAMERA (12600)
COMPUTER (12100)
PDA (12200)
VIDEO CAMERA (12300)
MOBILE PHONE (12500)
(11700)
(11800)
(11900)
(12000)
COMMUNICATION NETWORK (11400)
INTERNET SERVICE PROVIDER (11200)
11000
INTERNET (11100)
STREAMING SERVER (11300)

FIG. 22

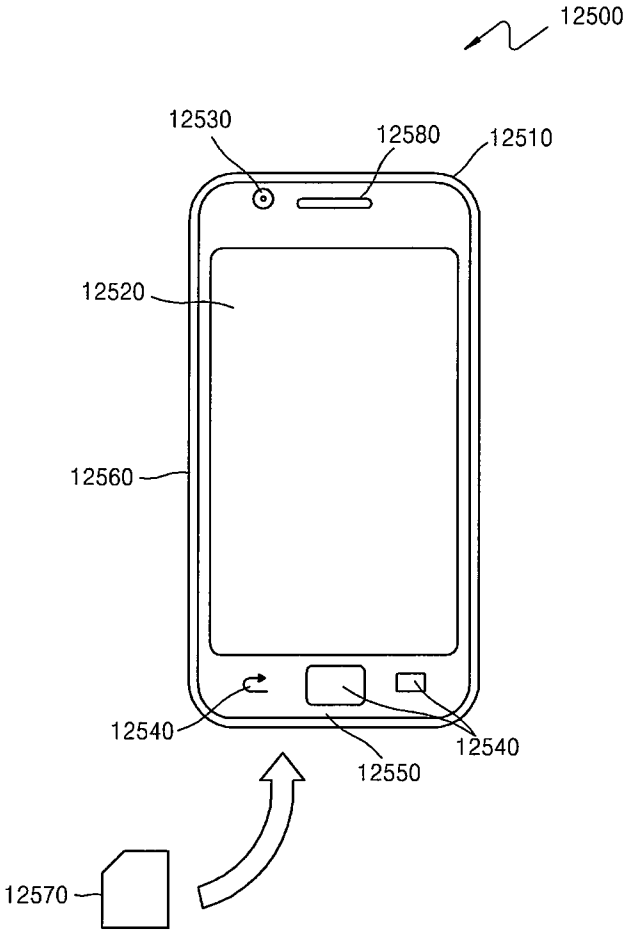

12500
12530
12580
12510
12520
12560
12540
12540
12550
12570

FIG. 23

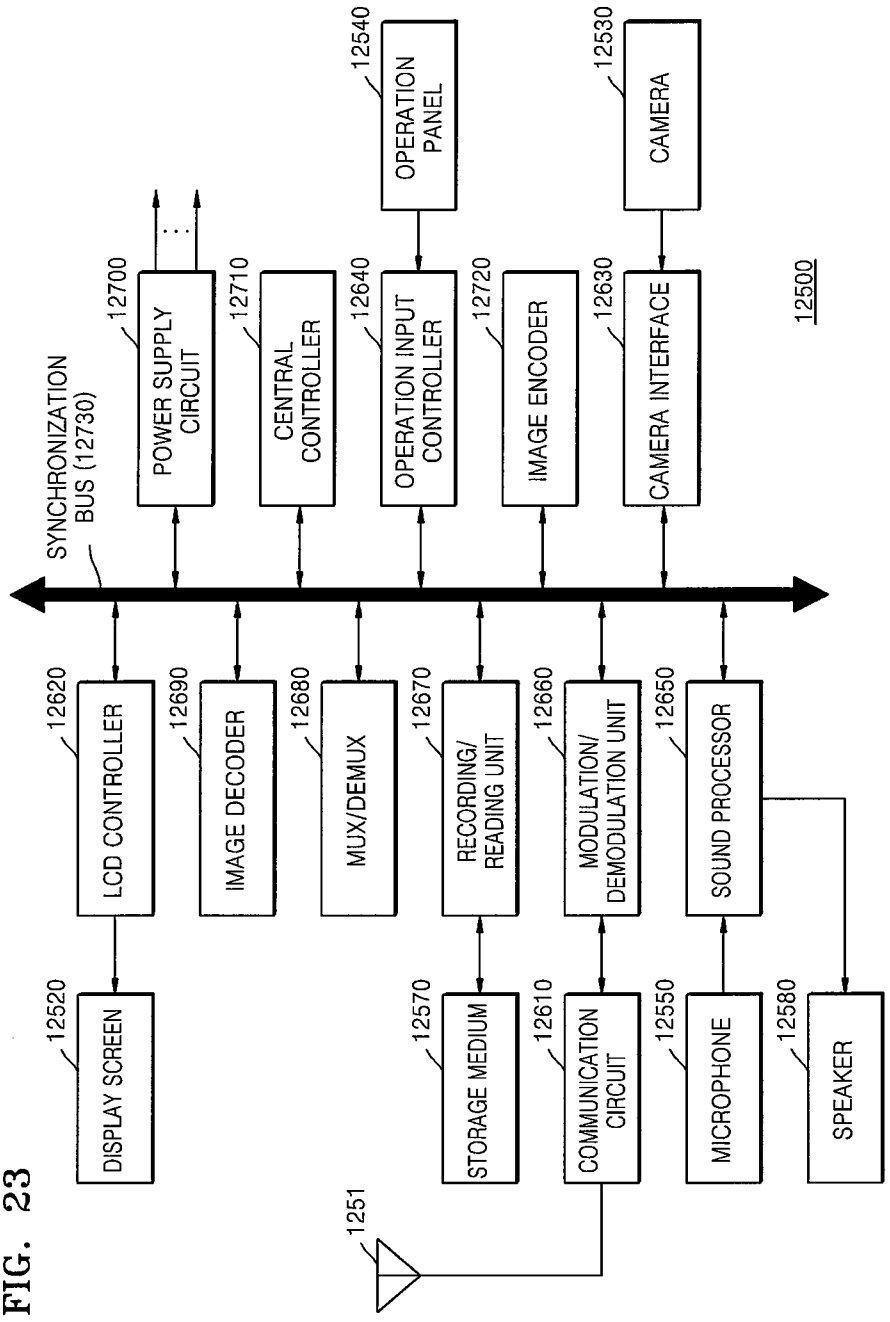

12500
SYNCHRONIZATION BUS (12730)
POWER SUPPLY CIRCUIT
12700
CENTRAL CONTROLLER
12710
OPERATION INPUT CONTROLLER
12640
OPERATION PANEL
12540
IMAGE ENCODER
12720
CAMERA INTERFACE
12630
CAMERA
12530
LCD CONTROLLER
12620
IMAGE DECODER
12690
MUX/DEMUX
12680
RECORDING/ READING UNIT
12670
MODULATION/ DEMODULATION UNIT
12660
SOUND PROCESSOR
12650
DISPLAY SCREEN
12520
STORAGE MEDIUM
12570
COMMUNICATION CIRCUIT
12610
MICROPHONE
12550
SPEAKER
12580
1251

FIG. 24

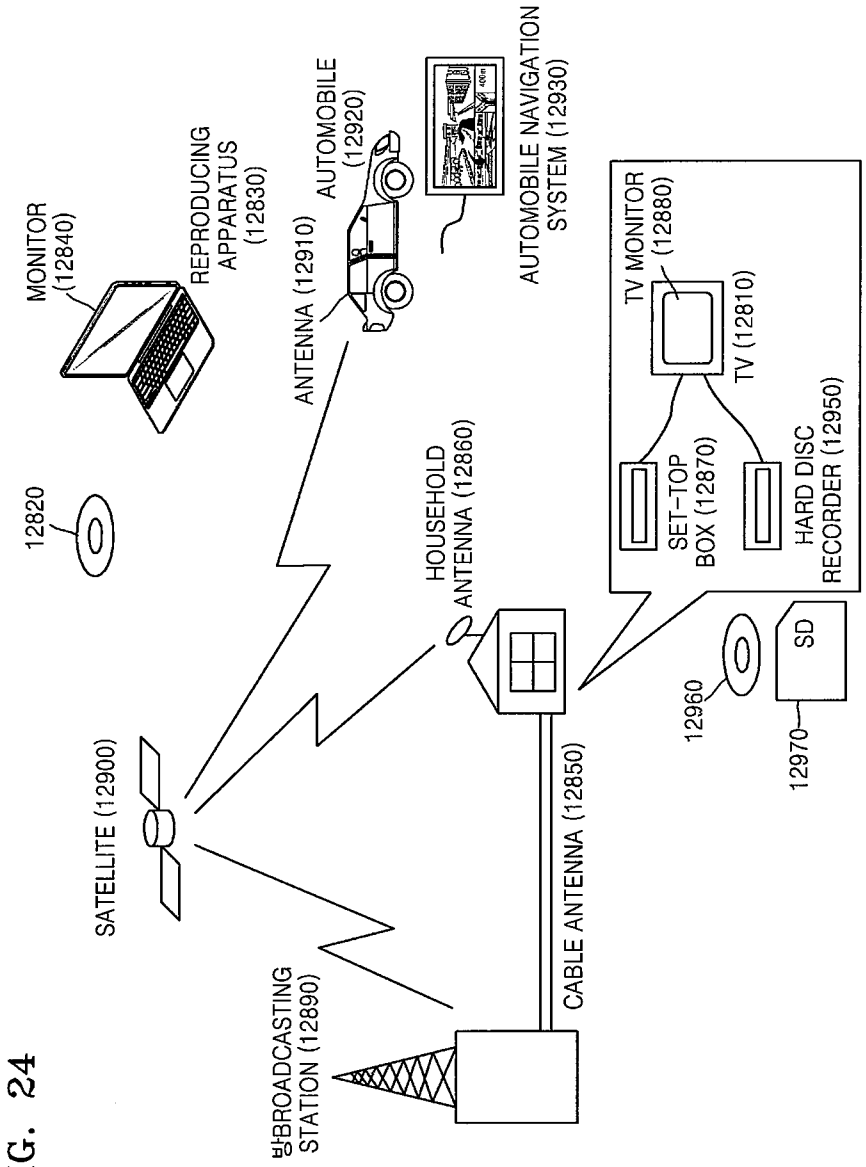
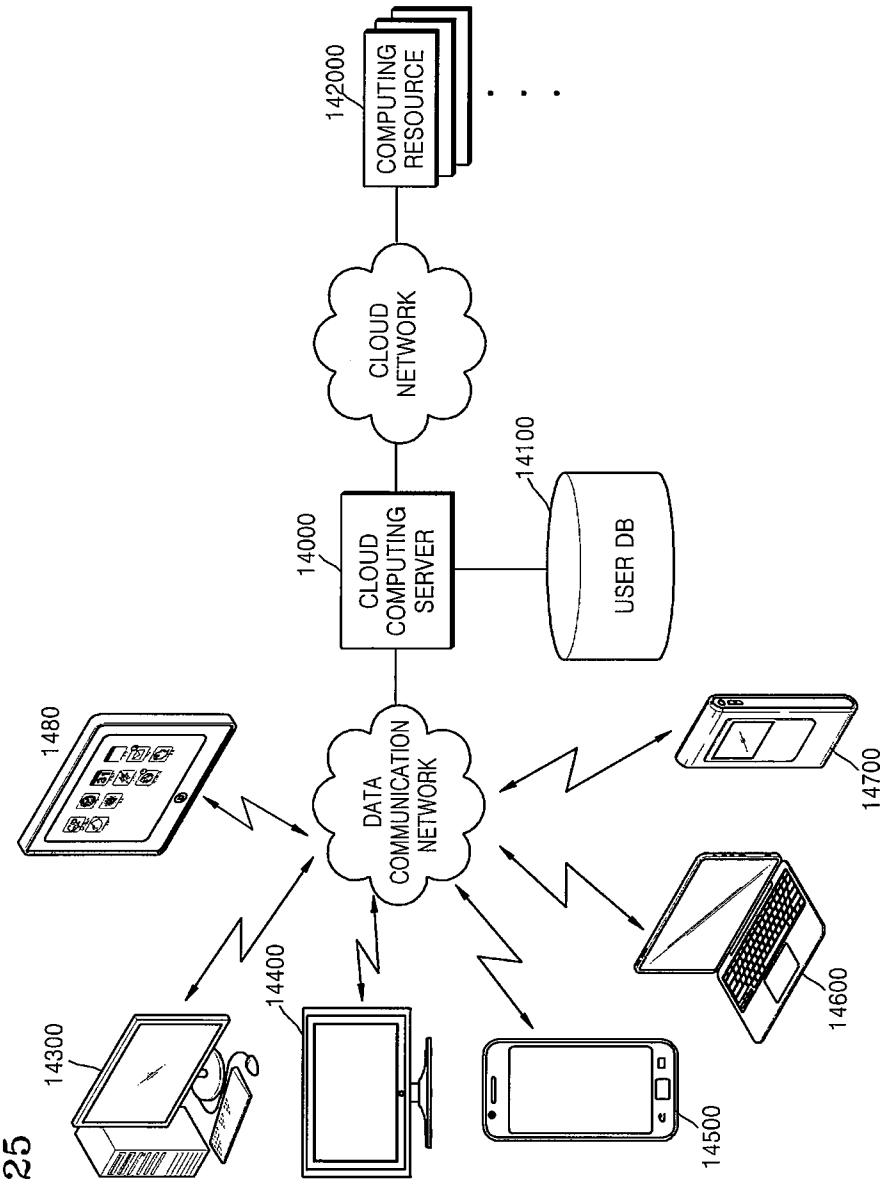

MONITOR (12840)
REPRODUCING APPARATUS (12830)
AUTOMOBILE (12920)
ANTENNA (12910)
AUTOMOBILE NAVIGATION SYSTEM (12930)
12820
HOUSEHOLD ANTENNA (12860)
TV MONITOR (12880)
TV (12810)
SET-TOP BOX (12870)
HARD DISC RECORDER (12950)
SATELLITE (12900)
CABLE ANTENNA (12850)
12960
SD
12970
방BROADCASTING STATION (12890)

FIG. 25


142000
COMPUTING RESOURCE
CLOUD NETWORK
14100
USER DB
14000
CLOUD COMPUTING SERVER
DATA COMMUNICATION NETWORK
1480
14700
14600
14400
14300
14500