FIG. 1

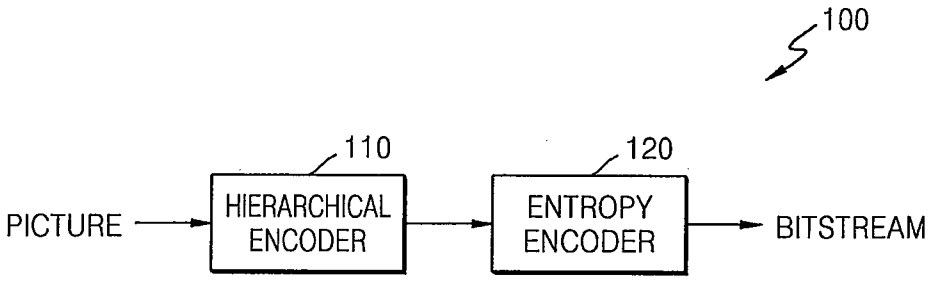

100
110
120
PICTURE
HIERARCHICAL ENCODER
ENTROPY ENCODER
BITSTREAM

FIG. 2

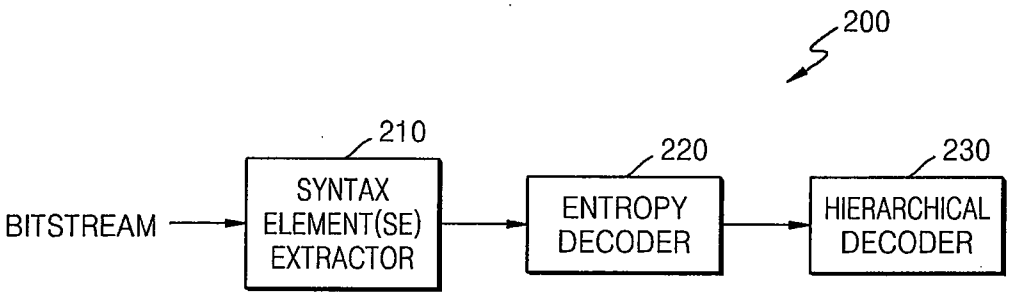

200
210
220
230
BITSTREAM
SYNTAX ELEMENT(SE) EXTRACTOR
ENTROPY DECODER
HIERARCHICAL DECODER

FIG. 3

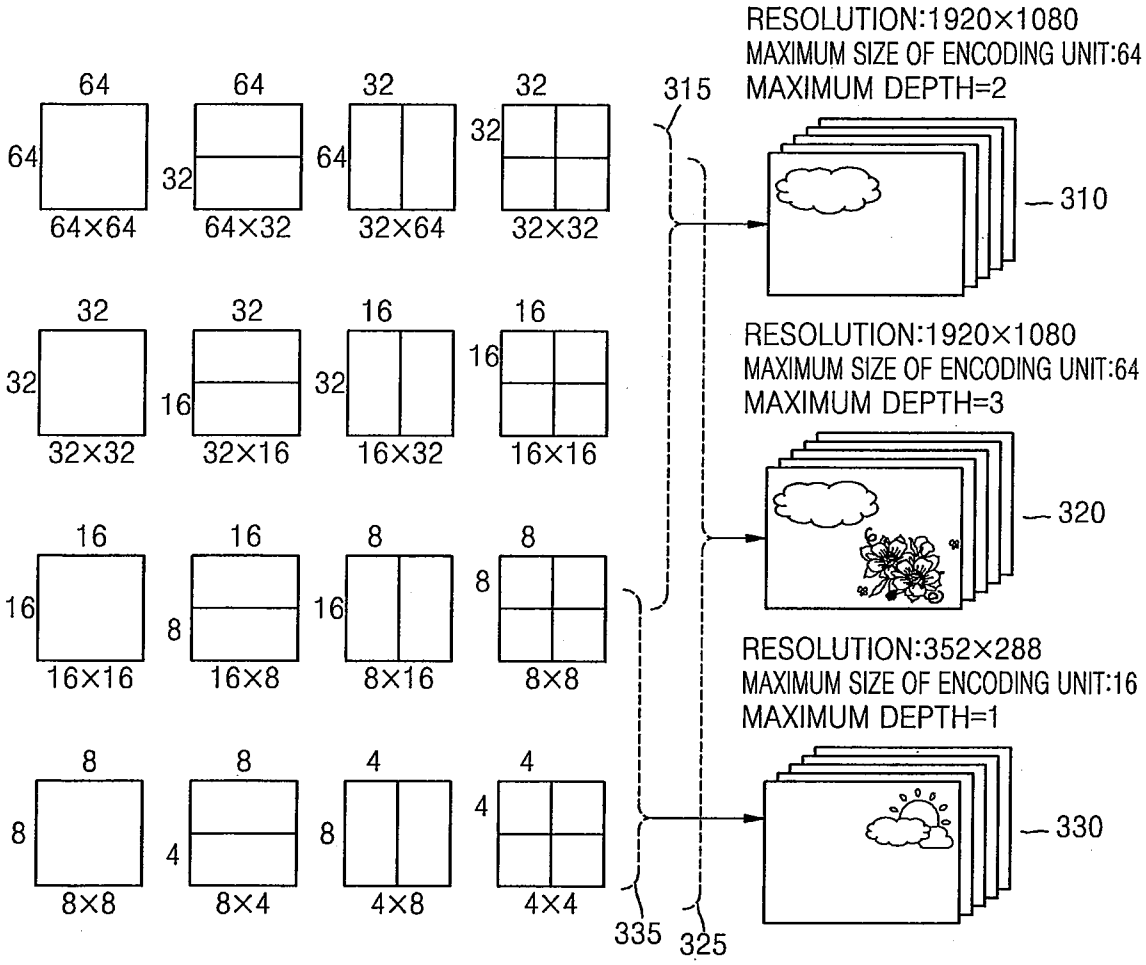

RESOLUTION:1920×1080
MAXIMUM SIZE OF ENCODING UNIT:64
MAXIMUM DEPTH=2
315
64
64
64×64
64
32
64×32
32
64
32×64
32
32
32×32
310
RESOLUTION:1920×1080
MAXIMUM SIZE OF ENCODING UNIT:64
MAXIMUM DEPTH=3
32
32
32×32
32
16
32×16
16
32
16×32
16
16
16×16
320
RESOLUTION:352×288
MAXIMUM SIZE OF ENCODING UNIT:16
MAXIMUM DEPTH=1
16
16
16×16
16
8
16×8
8
16
8×16
8
8
8×8
330
8
8
8×8
8
4
8×4
4
8
4×8
4
4
4×4
335
325

FIG. 4

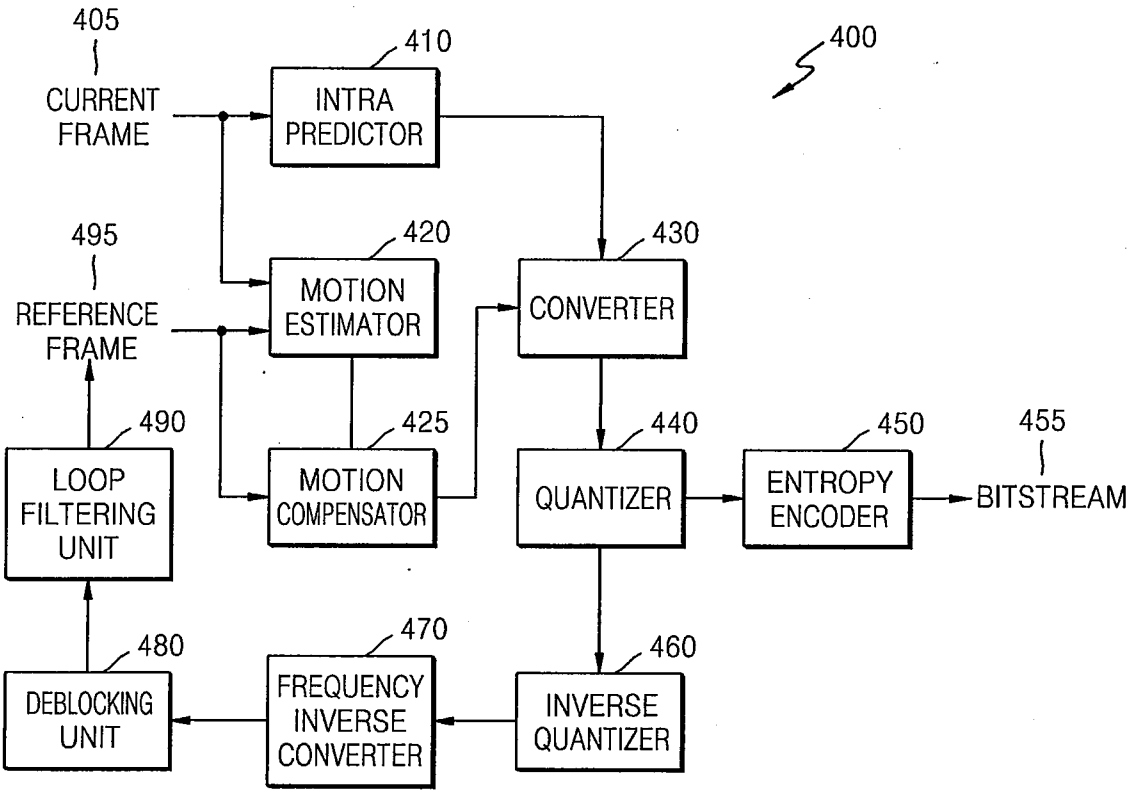

405
CURRENT FRAME
410
INTRA PREDICTOR
400
495
REFERENCE FRAME
420
MOTION ESTIMATOR
430
CONVERTER
490
LOOP FILTERING UNIT
425
MOTION COMPENSATOR
440
QUANTIZER
450
ENTROPY ENCODER
455
BITSTREAM
480
DEBLOCKING UNIT
470
FREQUENCY INVERSE CONVERTER
460
INVERSE QUANTIZER

FIG. 5

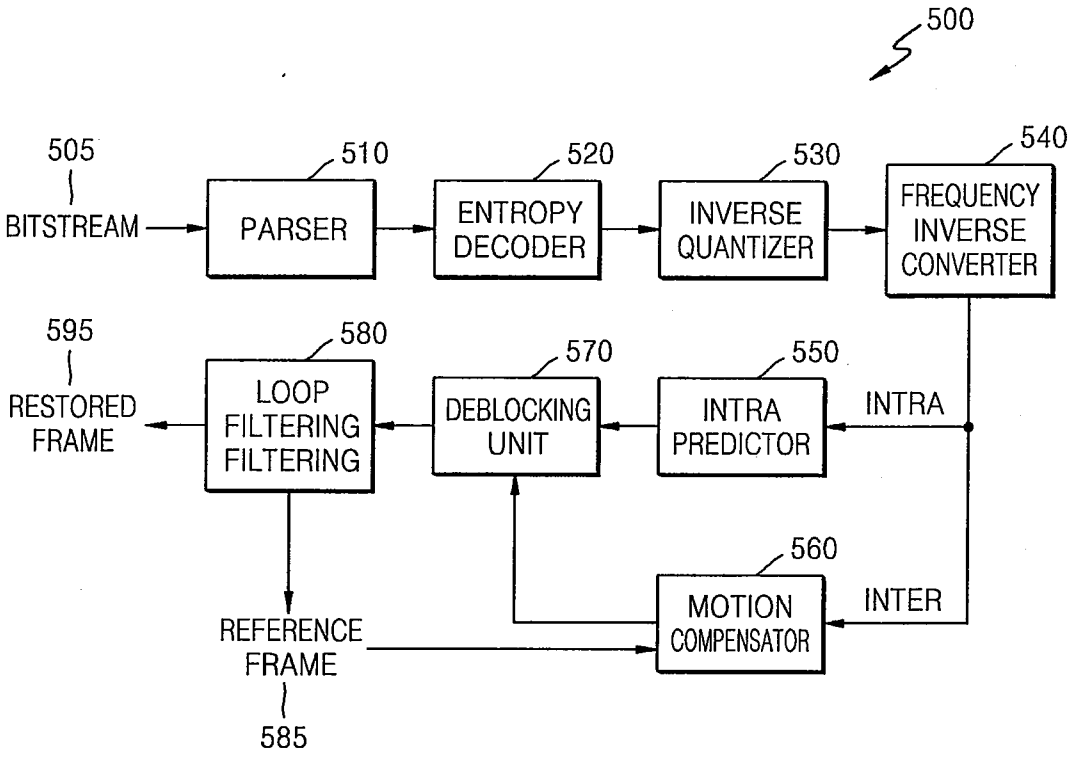

500
505
BITSTREAM
510
PARSER
520
ENTROPY DECODER
530
INVERSE QUANTIZER
540
FREQUENCY INVERSE CONVERTER
595
RESTORED FRAME
580
LOOP FILTERING FILTERING
570
DEBLOCKING UNIT
550
INTRA PREDICTOR
INTRA
560
MOTION COMPENSATOR
INTER
REFERENCE FRAME
585

FIG. 6

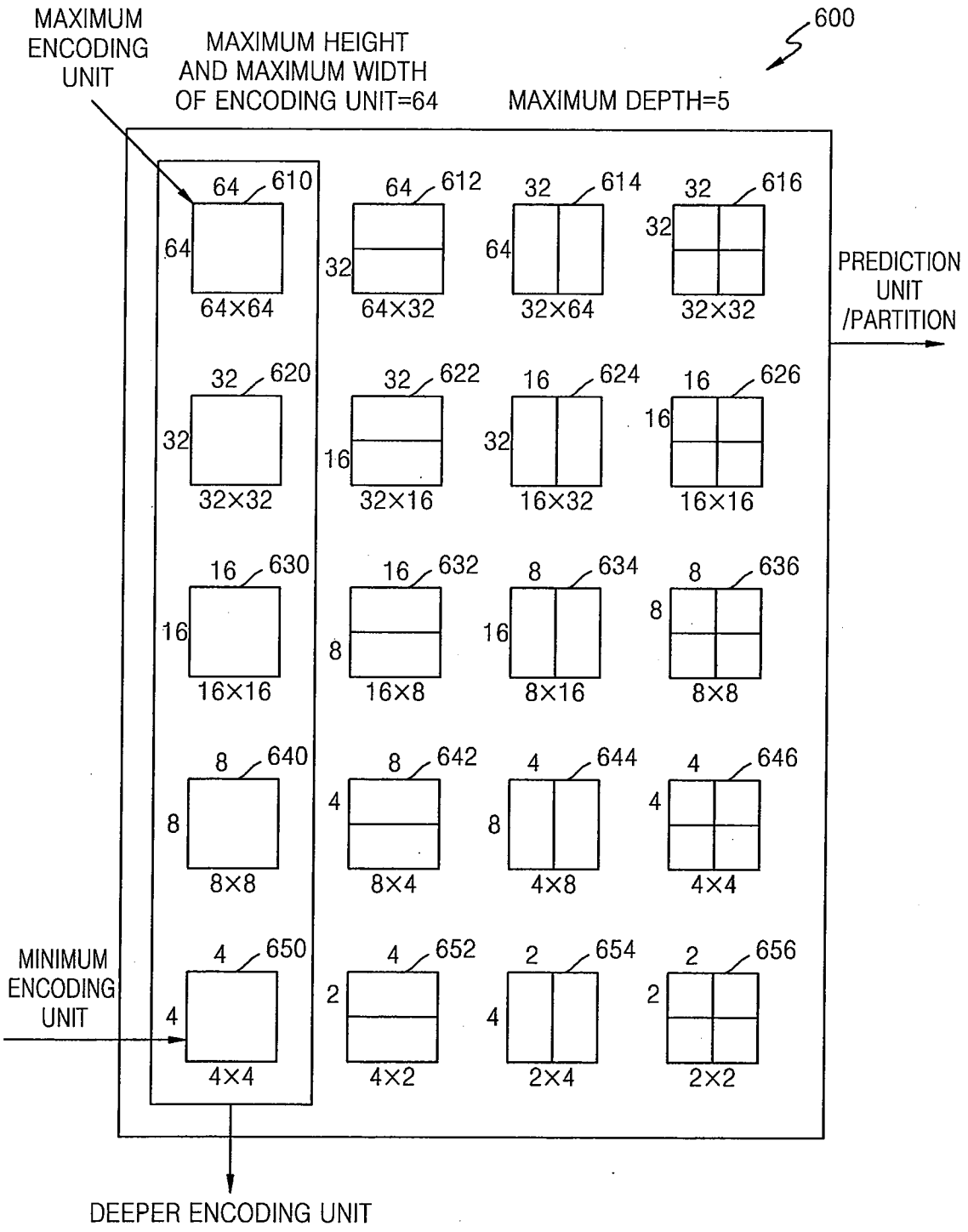

MAXIMUM ENCODING UNIT
MAXIMUM HEIGHT AND MAXIMUM WIDTH OF ENCODING UNIT=64
MAXIMUM DEPTH=5
600
PREDICTION UNIT /PARTITION
64 610
64 64×64
64 612
32 64×32
32 614
64 32×64
32 616
32 32×32
32 620
32 32×32
32 622
16 32×16
16 624
32 16×32
16 626
16 16×16
16 630
16 16×16
16 632
8 16×8
8 634
16 8×16
8 636
8 8×8
8 640
8 8×8
8 642
4 8×4
4 644
8 4×8
4 646
4 4×4
4 650
4 4×4
4 652
2 4×2
2 654
4 2×4
2 656
2 2×2
MINIMUM ENCODING UNIT
DEEPER ENCODING UNIT

FIG. 7

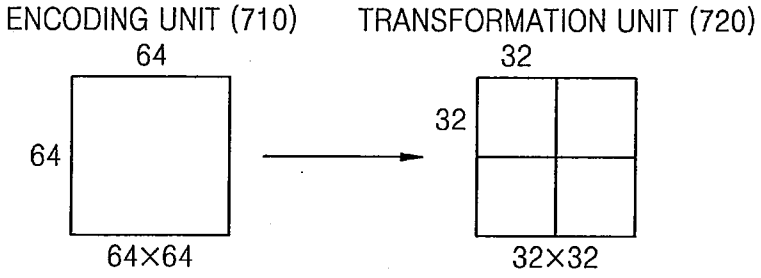

ENCODING UNIT (710)
TRANSFORMATION UNIT (720)
64
64
64×64
32
32
32×32

FIG. 8

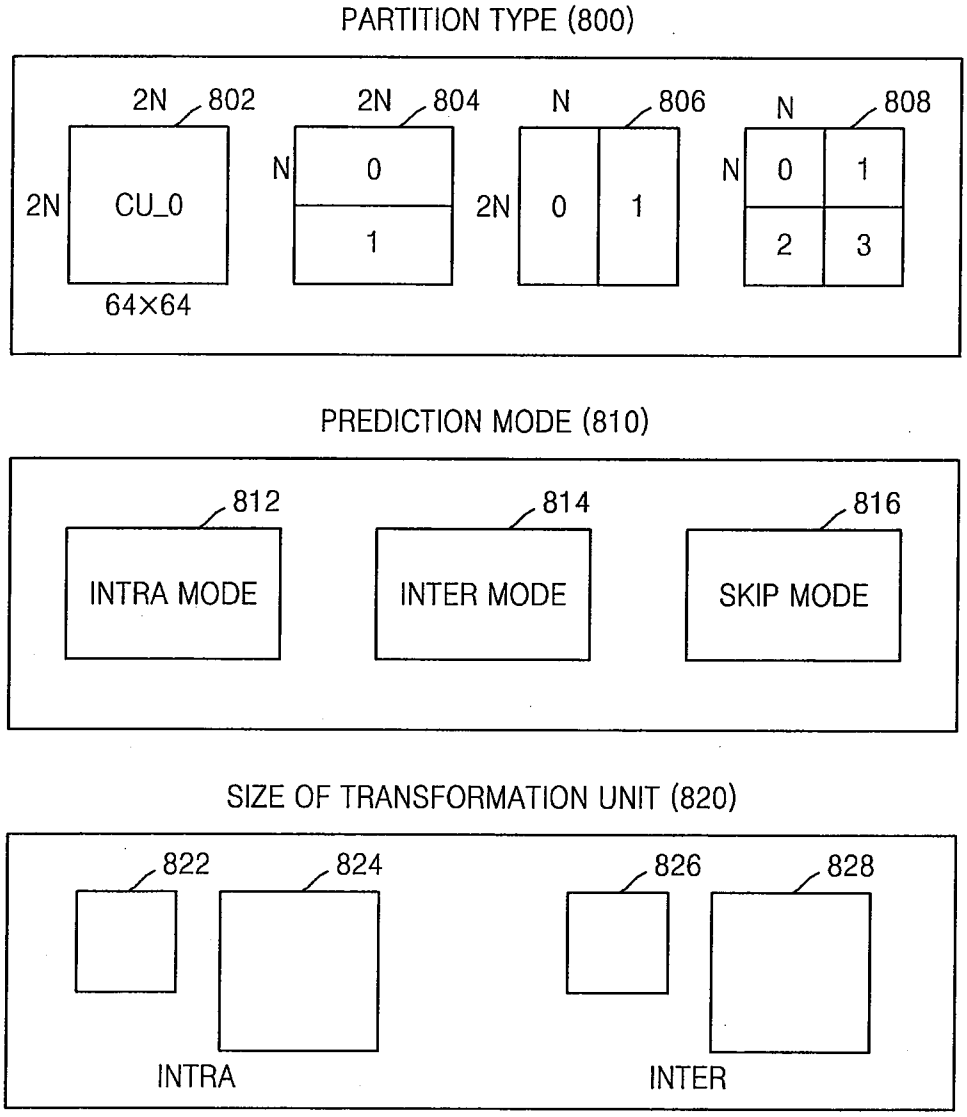

PARTITION TYPE (800)
2N
802
2N
CU_0
64×64
2N
804
N
0
1
N
806
2N
0
1
N
808
N
0
1
2
3
PREDICTION MODE (810)
812
INTRA MODE
814
INTER MODE
816
SKIP MODE
SIZE OF TRANSFORMATION UNIT (820)
822
824
826
828
INTRA
INTER

FIG. 9

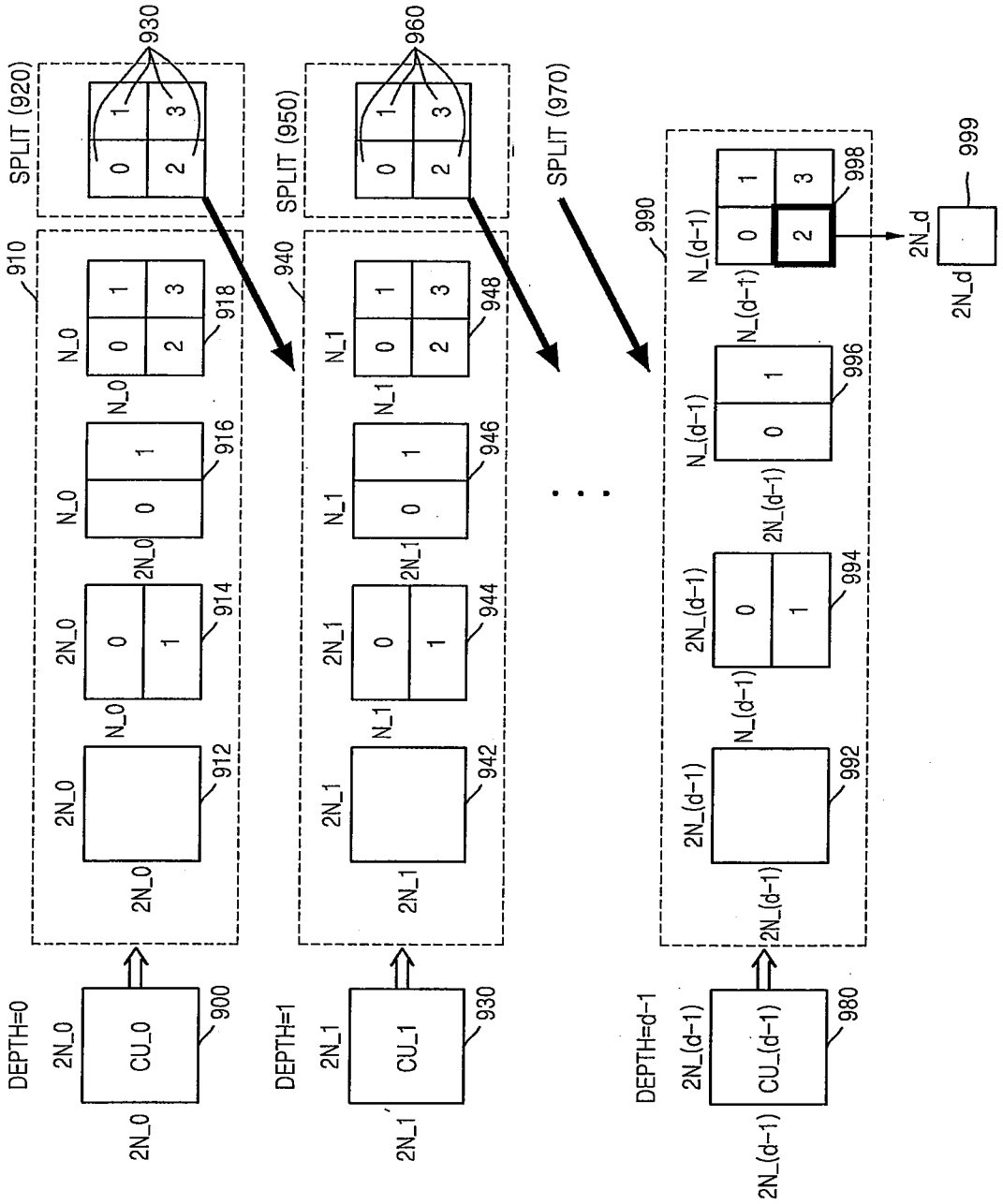
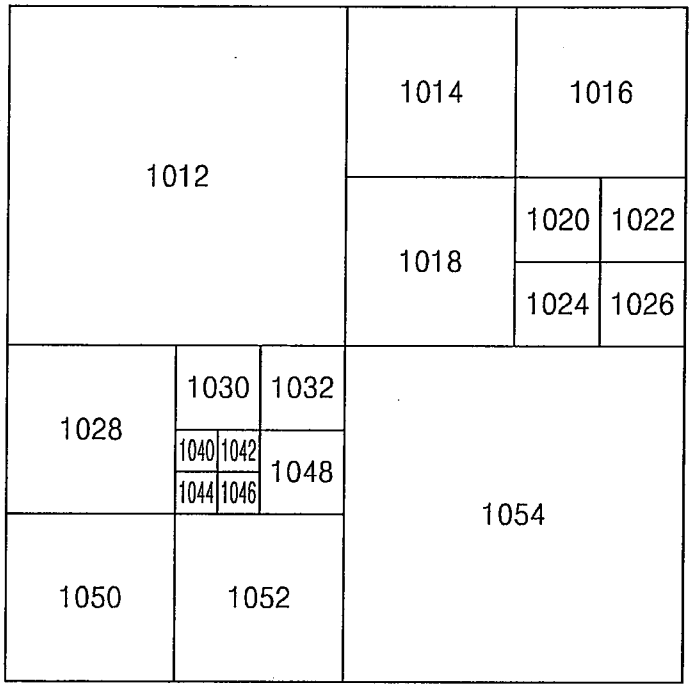

DEPTH=0
DEPTH=1
DEPTH=d-1
CU_0
CU_1
CU_(d-1)
900
930
980
SPLIT (920)
SPLIT (950)
SPLIT (970)
910
940
990
912
914
916
918
942
944
946
948
992
994
996
998
999
930
960
2N_0
N_0
2N_1
N_1
2N_(d-1)
N_(d-1)
2N_d

FIG. 10



ENCODING UNIT (1010)

FIG. 11

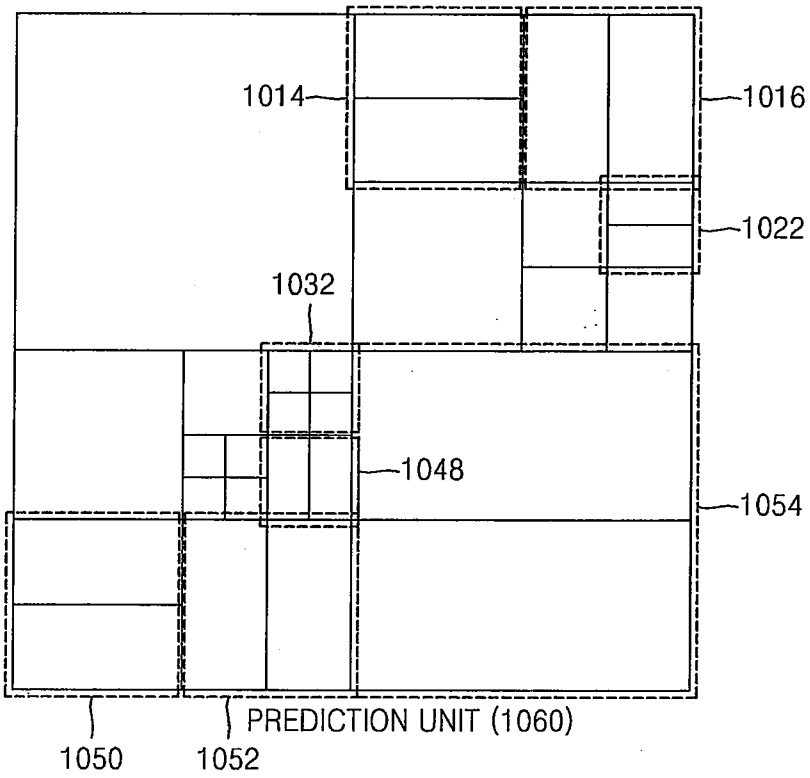


FIG. 12

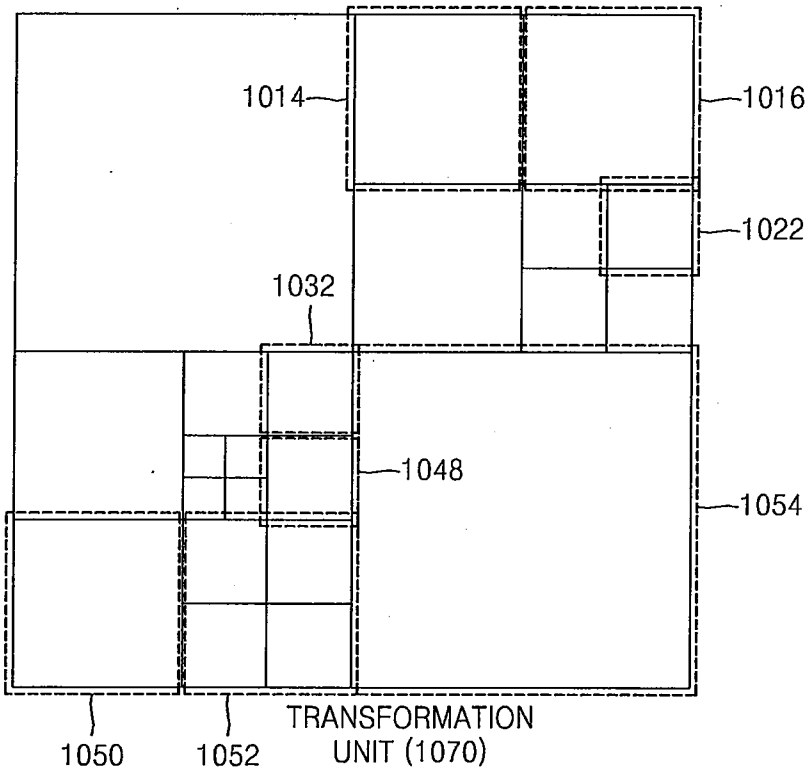

1014
1016
1022
1032
1048
1054
1050
1052
TRANSFORMATION
UNIT (1070)

FIG. 13

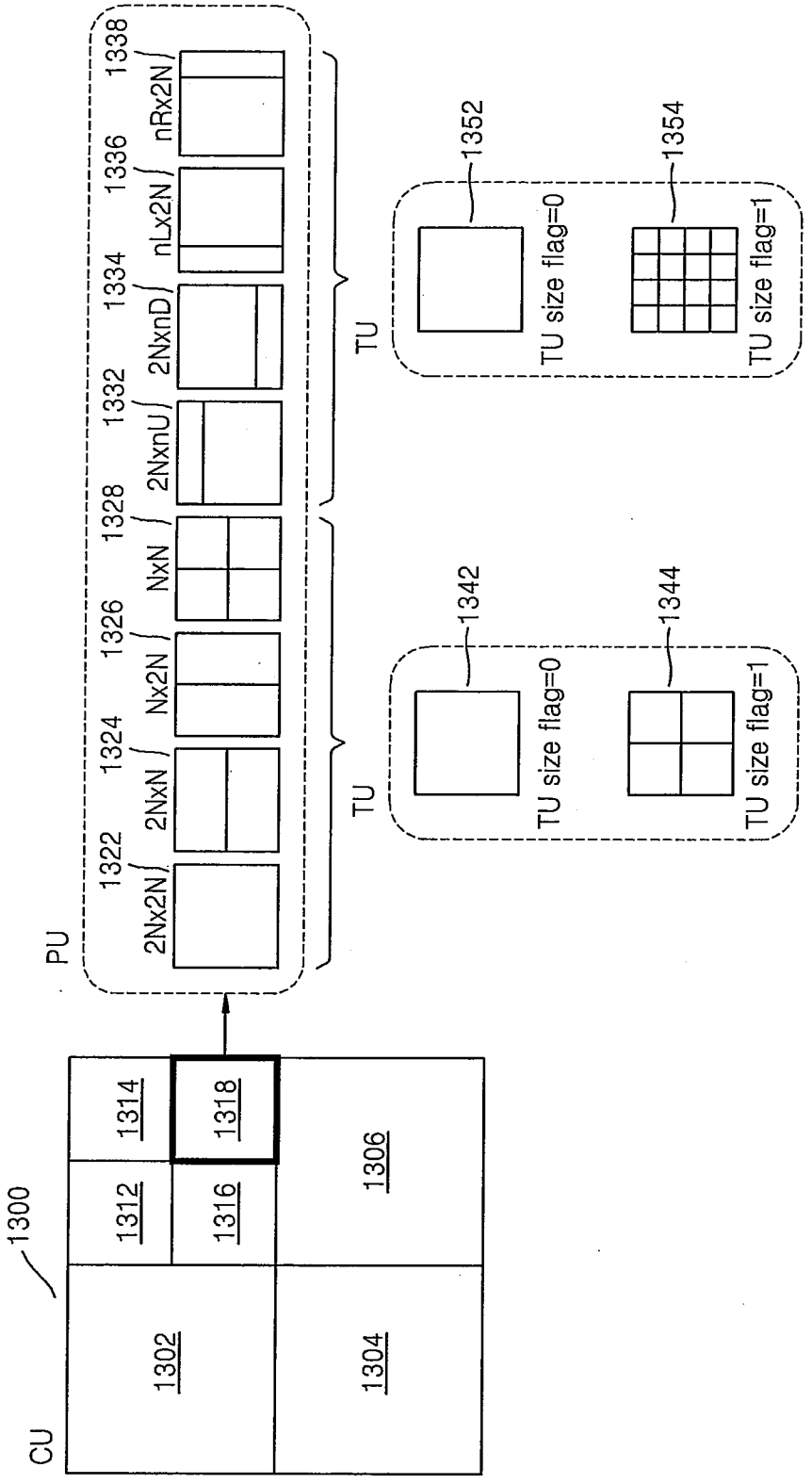

CU
1300
1302
1304
1306
1312
1314
1316
1318
PU
2Nx2N
1322
2NxN
1324
Nx2N
1326
NxN
1328
2NxnU
1332
2NxnD
1334
nLx2N
1336
nRx2N
1338
TU
TU
1342
TU size flag=0
1344
TU size flag=1
1352
TU size flag=0
1354
TU size flag=1

FIG. 14

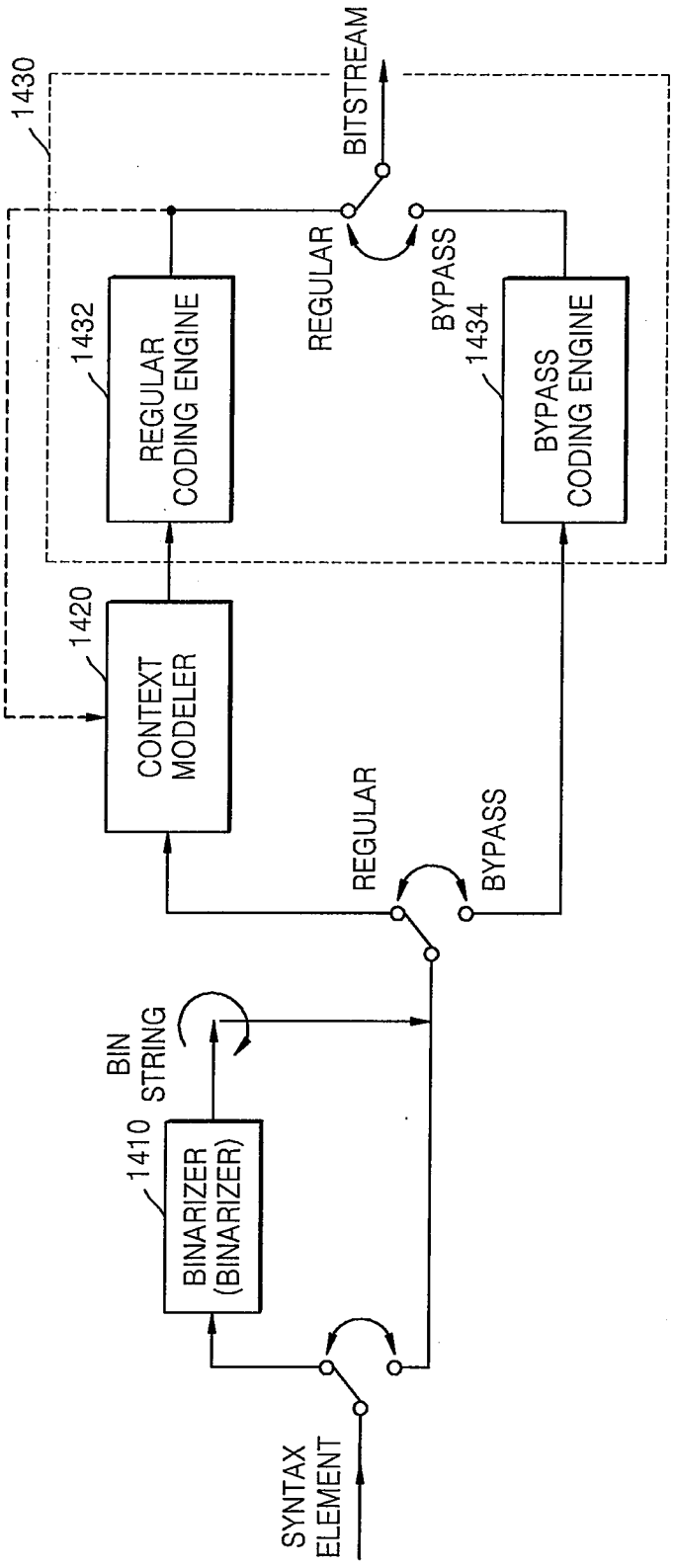

1400
1430
BITSTREAM
REGULAR
BYPASS
1432
REGULAR CODING ENGINE
1434
BYPASS CODING ENGINE
1420
CONTEXT MODELER
REGULAR
BYPASS
BIN STRING
1410
BINARIZER (BINARIZER)
SYNTAX ELEMENT

FIG. 15

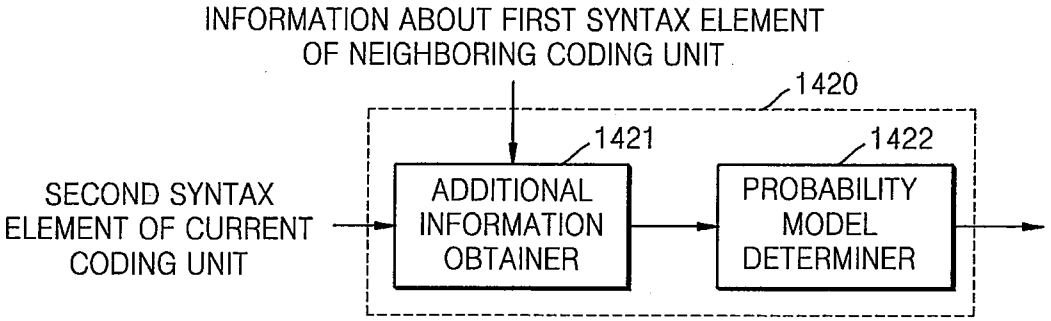
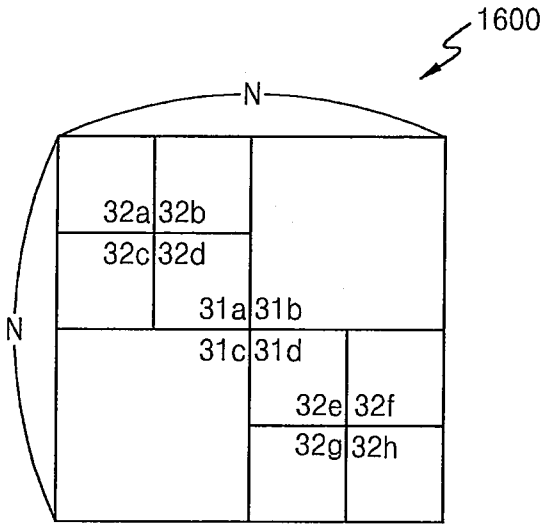

INFORMATION ABOUT FIRST SYNTAX ELEMENT OF NEIGHBORING CODING UNIT
1420
1421
1422
SECOND SYNTAX ELEMENT OF CURRENT CODING UNIT
ADDITIONAL INFORMATION OBTAINER
PROBABILITY MODEL DETERMINER

FIG. 16


1600
N
N
32a
32b
32c
32d
31a
31b
31c
31d
32e
32f
32g
32h

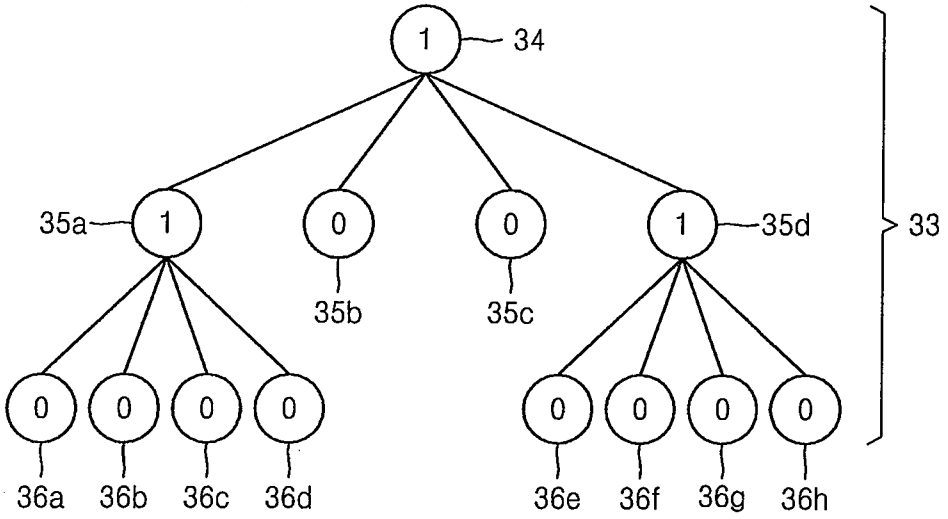

1
34
35a
1
0
0
1
35d
33
35b
35c
0
0
0
0
0
0
0
0
36a
36b
36c
36d
36e
36f
36g
36h

FIG. 17A

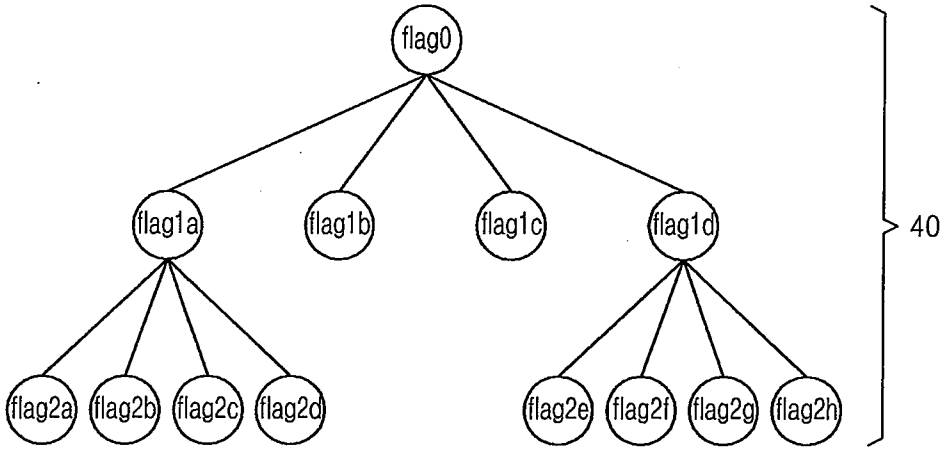


FIG. 17B

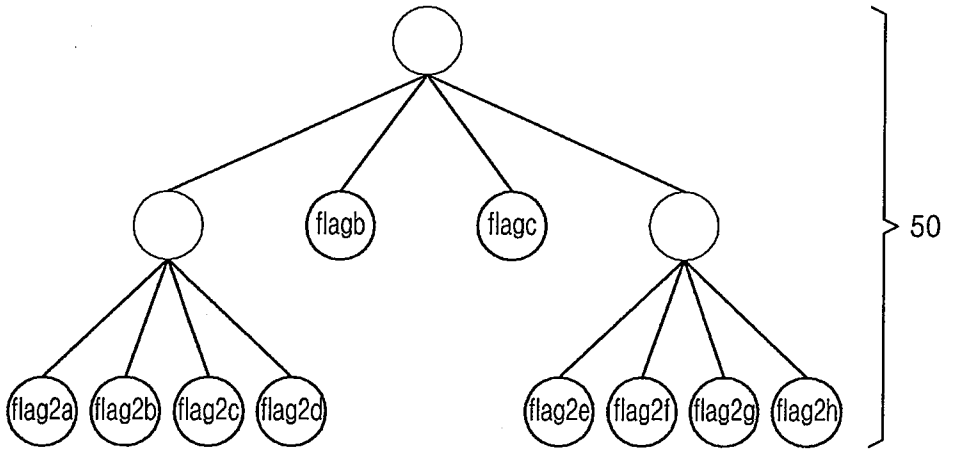


FIG. 18A

1810

COMBINATION VALUE	ctxIdx
S_1	2
S_2	1
⋮	⋮
S_m	4

FIG. 18B

1820

COMBINATION VALUE	ctxIdx
S_1 ⋮ S_2	2
S_{X+1} ⋮ S_Y	0
S_{Y+1} ⋮ S_Z	1
⋮	⋮

FIG. 19

1900

CtxIdx	0	1	2	3	· · ·
pStateIdx	12	7	41	22	· · ·
MPS	1	0	0	1	· · ·

FIG. 20

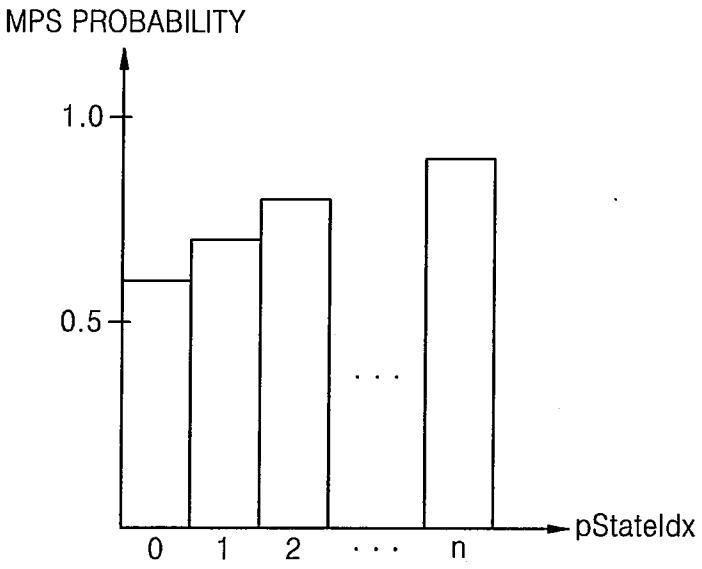


FIG. 21

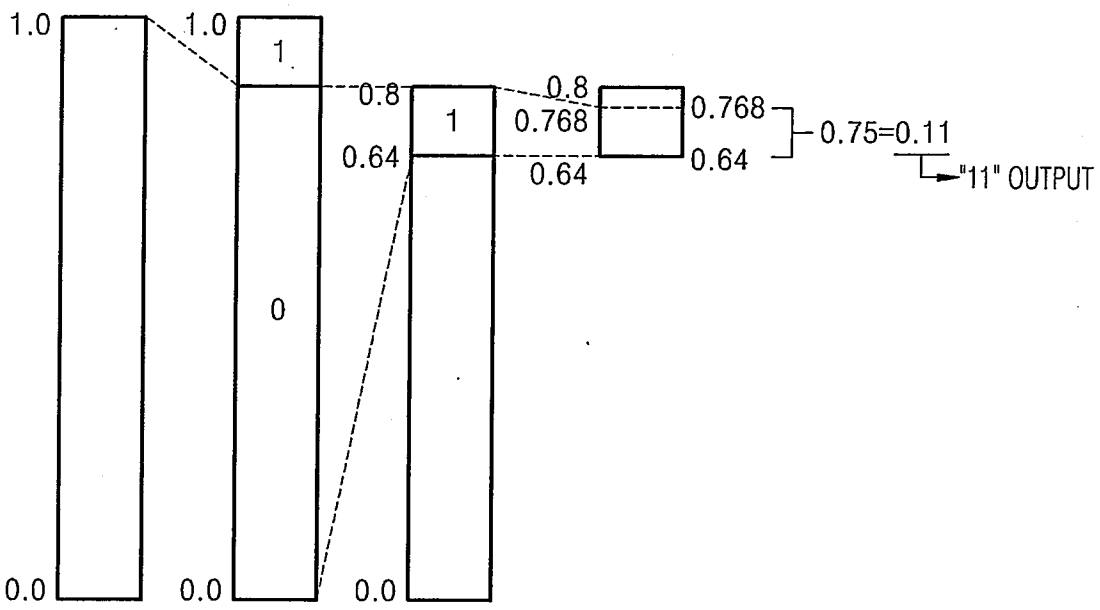

1.0
1.0
1
0.8
0.8
0.768
0.768
0.75=0.11
"11" OUTPUT
1
0.64
0.64
0.64
0
0.0
0.0
0.0

FIG. 22

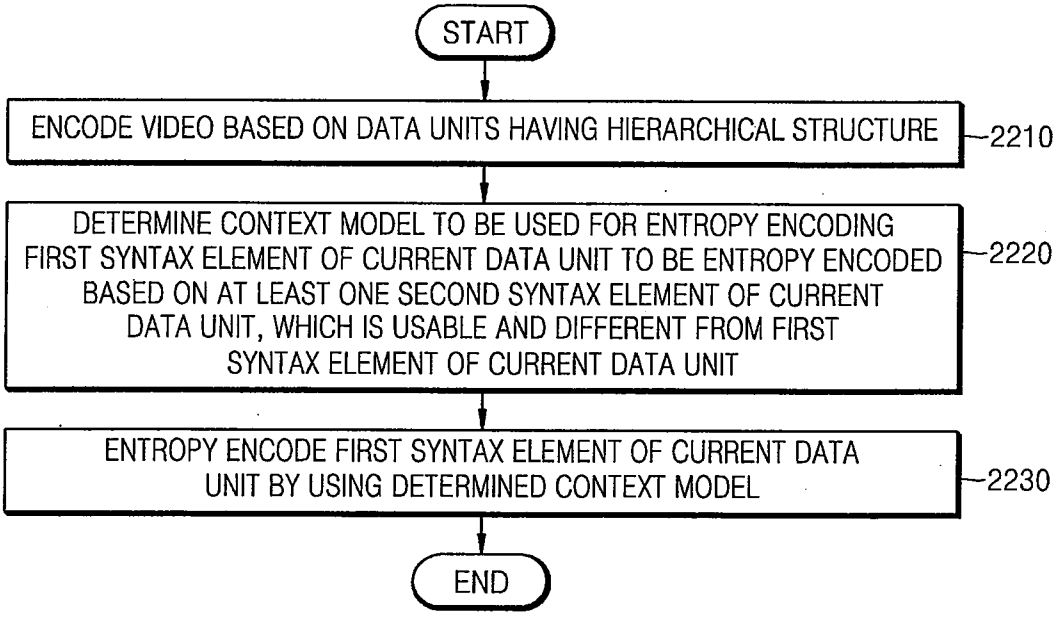

START
ENCODE VIDEO BASED ON DATA UNITS HAVING HIERARCHICAL STRUCTURE
2210
DETERMINE CONTEXT MODEL TO BE USED FOR ENTROPY ENCODING FIRST SYNTAX ELEMENT OF CURRENT DATA UNIT TO BE ENTROPY ENCODED BASED ON AT LEAST ONE SECOND SYNTAX ELEMENT OF CURRENT DATA UNIT, WHICH IS USABLE AND DIFFERENT FROM FIRST SYNTAX ELEMENT OF CURRENT DATA UNIT
2220
ENTROPY ENCODE FIRST SYNTAX ELEMENT OF CURRENT DATA UNIT BY USING DETERMINED CONTEXT MODEL
2230
END

FIG. 23

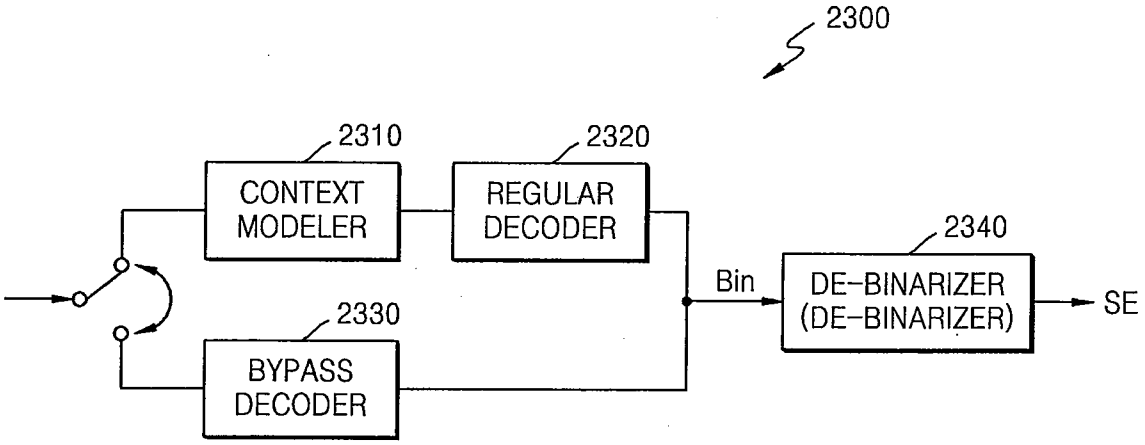
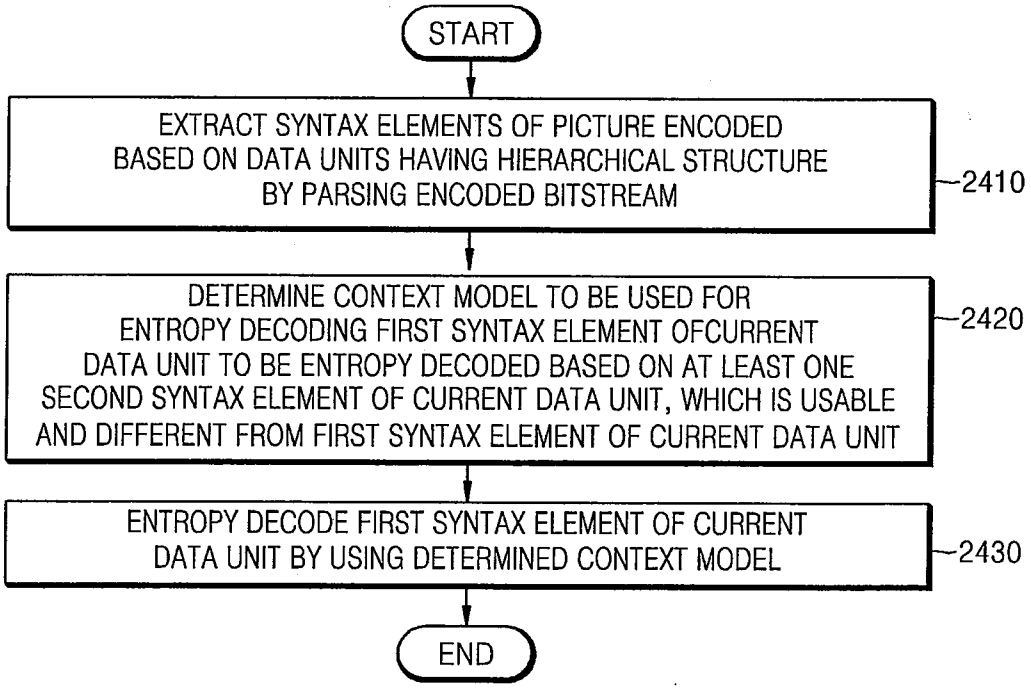

2300
2310
CONTEXT MODELER
2320
REGULAR DECODER
2340
Bin
DE-BINARIZER (DE-BINARIZER)
SE
2330
BYPASS DECODER

FIG. 24


START
EXTRACT SYNTAX ELEMENTS OF PICTURE ENCODED BASED ON DATA UNITS HAVING HIERARCHICAL STRUCTURE BY PARSING ENCODED BITSTREAM
2410
DETERMINE CONTEXT MODEL TO BE USED FOR ENTROPY DECODING FIRST SYNTAX ELEMENT OFCURRENT DATA UNIT TO BE ENTROPY DECODED BASED ON AT LEAST ONE SECOND SYNTAX ELEMENT OF CURRENT DATA UNIT, WHICH IS USABLE AND DIFFERENT FROM FIRST SYNTAX ELEMENT OF CURRENT DATA UNIT
2420
ENTROPY DECODE FIRST SYNTAX ELEMENT OF CURRENT DATA UNIT BY USING DETERMINED CONTEXT MODEL
2430
END