

FIG. 1

LfstDcOnly = 1	
LfstZeroOutSigCoeffFlag = 1	
MtsZeroOutSigCoeffFlag = 1	
transform_tree(x0, y0, cbWidth, cbHeight, treeType, chType)	
lfstWidth = (treeType == DUAL_TREE_CHROMA) ? cbWidth / SubWidthC : ((IntraSubPartitionsSplitType == ISP_VER_SPLIT) ? cbWidth / NumIntraSubPartitions : cbWidth)	
lfstHeight = (treeType == DUAL_TREE_CHROMA) ? cbHeight / SubHeightC : ((IntraSubPartitionsSplitType == ISP_HOR_SPLIT) ? cbHeight / NumIntraSubPartitions : cbHeight)	
if(Min(lfstWidth, lfstHeight) >= 4 && sps_lfst_enabled_flag == 1 && CuPredMode[chType][x0][y0] == MODE_INTRA && transform_skip_flag[x0][y0][0] == 0 && (treeType != DUAL_TREE_CHROMA !intra_mip_flag[x0][y0] Min(lfstWidth, lfstHeight) >= 16) && Max(cbWidth, cbHeight) <= MaxTbSizeY) {	
if((IntraSubPartitionsSplitType != ISP_NO_SPLIT LfstDcOnly == 0) && LfstZeroOutSigCoeffFlag == 1)	
lfst_idx	ae(v)
}	

FIG. 2

treeType	transform_skip_flag[0]	transform_skip_flag[1]	transform_skip_flag[2]	lfst_idx_signaling
SINGLE_TREE	1	0	0	Infer to 0
	1	0	1	Infer to 0
	1	1	0	Infer to 0
	1	1	1	Infer to 0
	0	0	0	possible
	0	0	1	possible
	0	1	0	possible
	0	1	1	possible
DUAL_TREE_LUMA	0	-	-	possible
	1	-	-	Infer to 0
DUAL_TREE_CHROMA	-	0	0	possible
	-	0	1	possible
	-	1	0	possible
	-	1	1	possible

FIG. 3

treeType	transform_skip_flag[0]	transform_skip_flag[1]	transform_skip_flag[2]	lfst_idx_signaling
SINGLE_TREE	1	0	0	Infer to 0
	1	0	1	Infer to 0
	1	1	0	Infer to 0
	1	1	1	Infer to 0
	0	0	0	possible
	0	0	1	Infer to 0
	0	1	0	Infer to 0
	0	1	1	Infer to 0
DUAL_TREE_LUMA	0	-	-	possible
	1	-	-	Infer to 0
DUAL_TREE_CHROMA	-	0	0	possible
	-	0	1	Infer to 0
	-	1	0	Infer to 0
	-	1	1	Infer to 0

FIG. 4

<pre> nonTsUsed = (treeType == DUAL_TREE_LUMA && transform_skip_flag[x0][y0][0] == 0) (treeType == DUAL_TREE_CHROMA && transform_skip_flag[x0][y0][1] == 0 && transform_skip_flag[x0][y0][2] == 0) (treeType == SINGLE_TREE && transform_skip_flag[x0][y0][0] == 0 && transform_skip_flag[x0][y0][1] == 0 && transform_skip_flag[x0][y0][2] == 0) </pre>	
<pre> if(Min(lfstWidth, lfstHeight) >= 4 && sps_lfst_enabled_flag == 1 && CuPredModel[chType][x0][y0] == MODE_INTRA && nonTsUsed == 1) && (treeType != DUAL_TREE_CHROMA !intra_mip_flag[x0][y0] Min(lfstWidth, lfstHeight) >= 16) && Max(cbWidth, cbHeight) <= MaxTbSizeY) { </pre>	
<pre> if((IntraSubPartitionsSplitType != ISP_NO_SPLIT LfstDcOnly == 0) && LfstZeroOutSigCoeffFlag == 1) </pre>	
lfst_idx	ae(v)
}	

FIG. 5

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NonTsUsed = ( ( treeType == DUAL_TREE_LUMA &&
  transform_skip_flag[ x0 ][ y0 ][ 0 ] == 0 ) ||
  ( treeType == DUAL_TREE_CHROMA &&
  transform_skip_flag[ x0 ][ y0 ][ 1 ] == 0 &&
  transform_skip_flag[ x0 ][ y0 ][ 2 ] == 0 ) ) ||
  ( treeType == SINGLE_TREE &&
  transform_skip_flag[ x0 ][ y0 ][ 0 ] == 0 &&
  transform_skip_flag[ x0 ][ y0 ][ 1 ] == 0 &&
  transform_skip_flag[ x0 ][ y0 ][ 2 ] == 0 ) )

condition = Min( lfstWidth, lfstHeight ) >= 4 &&
  sps_lfst_enabled_flag == 1 &&
  CuPredMode[ chType ][ x0 ][ y0 ] == MODE_INTRA &&
  NonTsUsed == 1 &&
  ( treeType != DUAL_TREE_CHROMA | |
    !intra_mip_flag[ x0 ][ y0 ] | |
    Min( lfstWidth, lfstHeight ) >= 16 ) &&
    Max( cbWidth, cbHeight ) <= MaxTbSizeY &&
  ( IntraSubPartitionsSplitType != ISP_NO_SPLIT | |
    LfstDcOnly == 0 ) &&
    LfstZeroOutSigCoeffFlag == 1

```

FIG. 6

<pre> tsUsed = (transform_skip_flag[x0][y0][0] == 1 transform_skip_flag[x0][y0][1] == 1 transform_skip_flag[x0][y0][2] == 1) </pre>	
<pre> if(Min(lfstWidth, lfstHeight) >= 4 && sps_lfst_enabled_flag == 1 && CuP_redModel[chType][x0][y0] == MODE_INTRA && tsUsed == 0 && (treeType != DUAL_TREE_CHROMA !intra_mip_flag[x0][y0] Min(lfstWidth, lfstHeight) >= 16) && Max(cbWidth, cbHeight) <= MaxTbSizeY) { </pre>	
<pre> if((IntraSubPartitionsSplitType != ISP_NO_SPLIT LfstDcOnly == 0) && LfstZeroOutSigCoeffFlag == 1) </pre>	
lfst_idx	ae(v)
}	

FIG. 7

```

tsUsed = ( transform_skip_flag[ x0 ][ y0 ][ 0 ] == 0 ||
transform_skip_flag[ x0 ][ y0 ][ 1 ] == 0 ||
transform_skip_flag[ x0 ][ y0 ][ 2 ] == 0 )

condition = Min( lfstWidth, lfstHeight ) >= 4 &&
sps_lfst_enabled_flag == 1 &&
CuPredMode[ chType ][ x0 ][ y0 ] == MODE_INTRA &&
tsUsed==0 &&
( treeType != DUAL_TREE_CHROMA | |
!intra_mip_flag[ x0 ][ y0 ] | |
Min( lfstWidth, lfstHeight ) >= 16 ) &&
Max( cbWidth, cbHeight ) <= MaxTbSizeY &&
( IntraSubPartitionsSplitType != ISP_NO_SPLIT | |
LfstDcOnly == 0 ) &&
LfstZeroOutSigCoeffFlag == 1

```

FIG. 8

treeType	transform_skip_flag[0]	transform_skip_flag[1]	transform_skip_flag[2]	lfst_idx_signaling
SINGLE_TREE	1	0	0	possible
	1	0	1	possible
	1	1	0	possible
	1	1	1	Infer to 0
	0	0	0	possible
	0	0	1	possible
	0	1	0	possible
	0	1	1	possible
	0	-	-	possible
	1	-	-	Infer to 0
DUAL_TREE_LUMA	-	0	0	possible
	-	0	1	possible
DUAL_TREE_CHROMA	-	1	0	possible
	-	1	1	Infer to 0

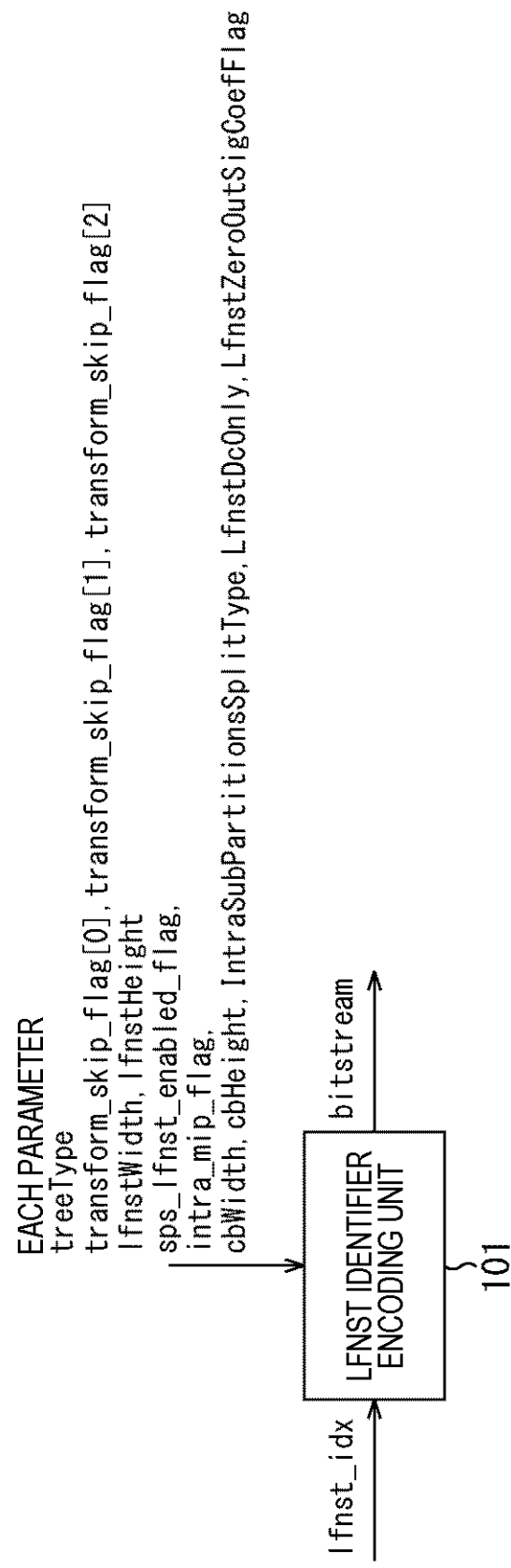
FIG. 9

treeType	transform_skip_flag[0]	transform_skip_flag[1]	transform_skip_flag[2]	lnst_idx_signaling
SINGLE_TREE	1	0	0	Infer to 0
	1	0	1	Infer to 0
	1	1	0	Infer to 0
	1	1	1	Infer to 0
	0	0	0	possible
	0	0	1	possible
	0	1	0	possible
	0	1	1	possible
DUAL_TREE_LUMA	0	-	-	possible
	1	-	-	Infer to 0
DUAL_TREE_CHROMA	-	0	0	possible
	-	0	1	possible
	-	1	0	possible
	-	1	1	Infer to 0

FIG. 10

treeType	transform_skip_flag[0]	transform_skip_flag[1]	transform_skip_flag[2]	lnst_idx_signaling
SINGLE_TREE	1	0	0	Infer to 0
	1	0	1	Infer to 0
	1	1	0	Infer to 0
	1	1	1	Infer to 0
	0	0	0	possible
	0	0	1	possible
	0	1	0	possible
	0	1	1	possible
	0	-	-	possible
	1	-	-	Infer to 0
DUAL_TREE_LUMA	-	0	0	possible
	-	1	0	Infer to 0
	-	1	1	Infer to 0

FIG. 11



100

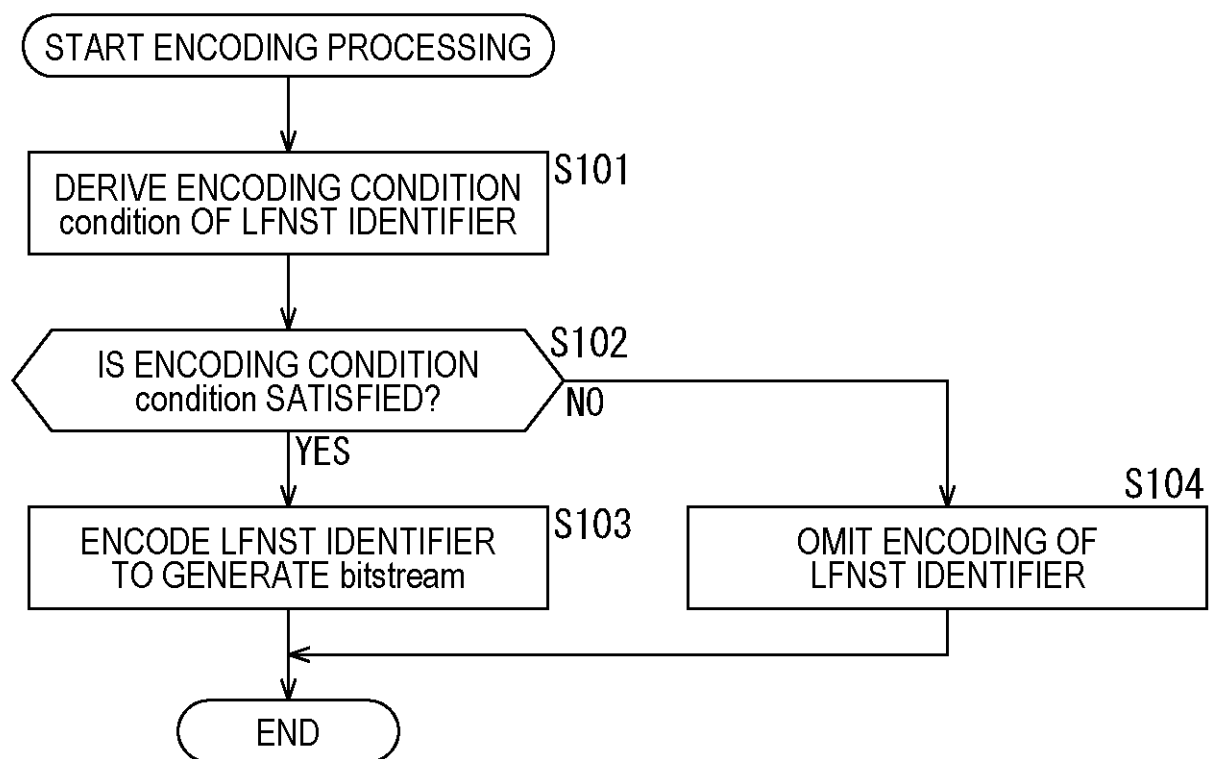
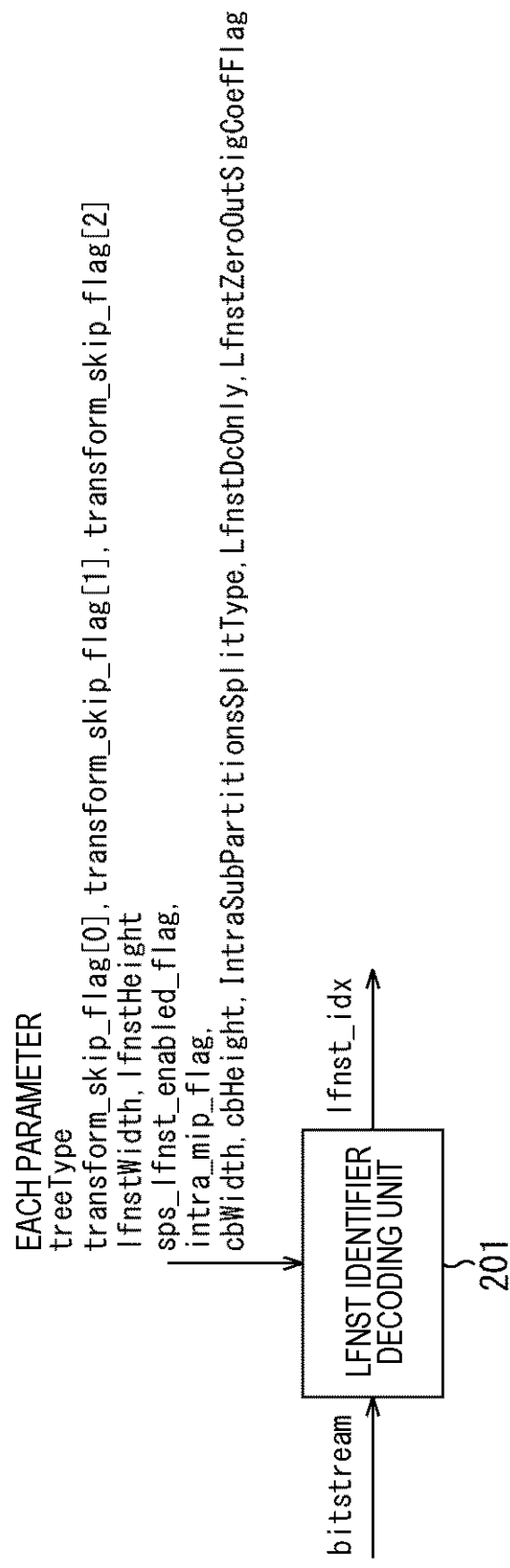
FIG. 12

FIG. 13



200

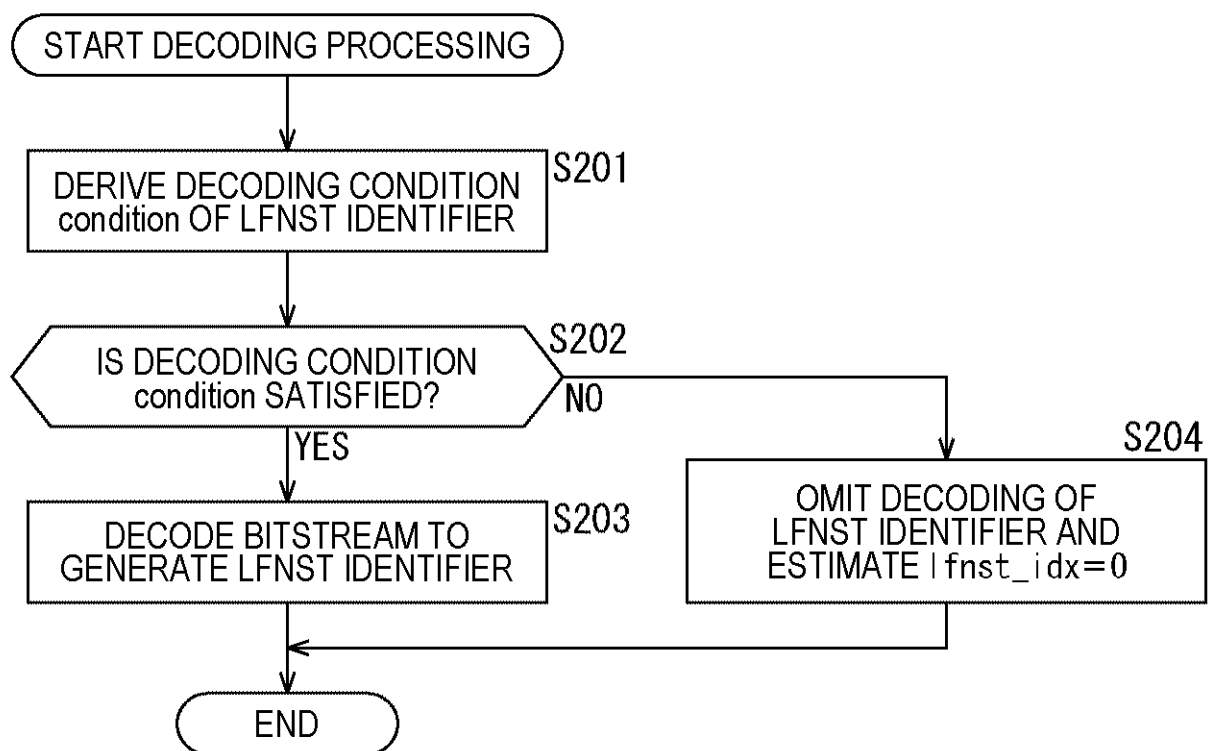
FIG. 14

FIG. 15

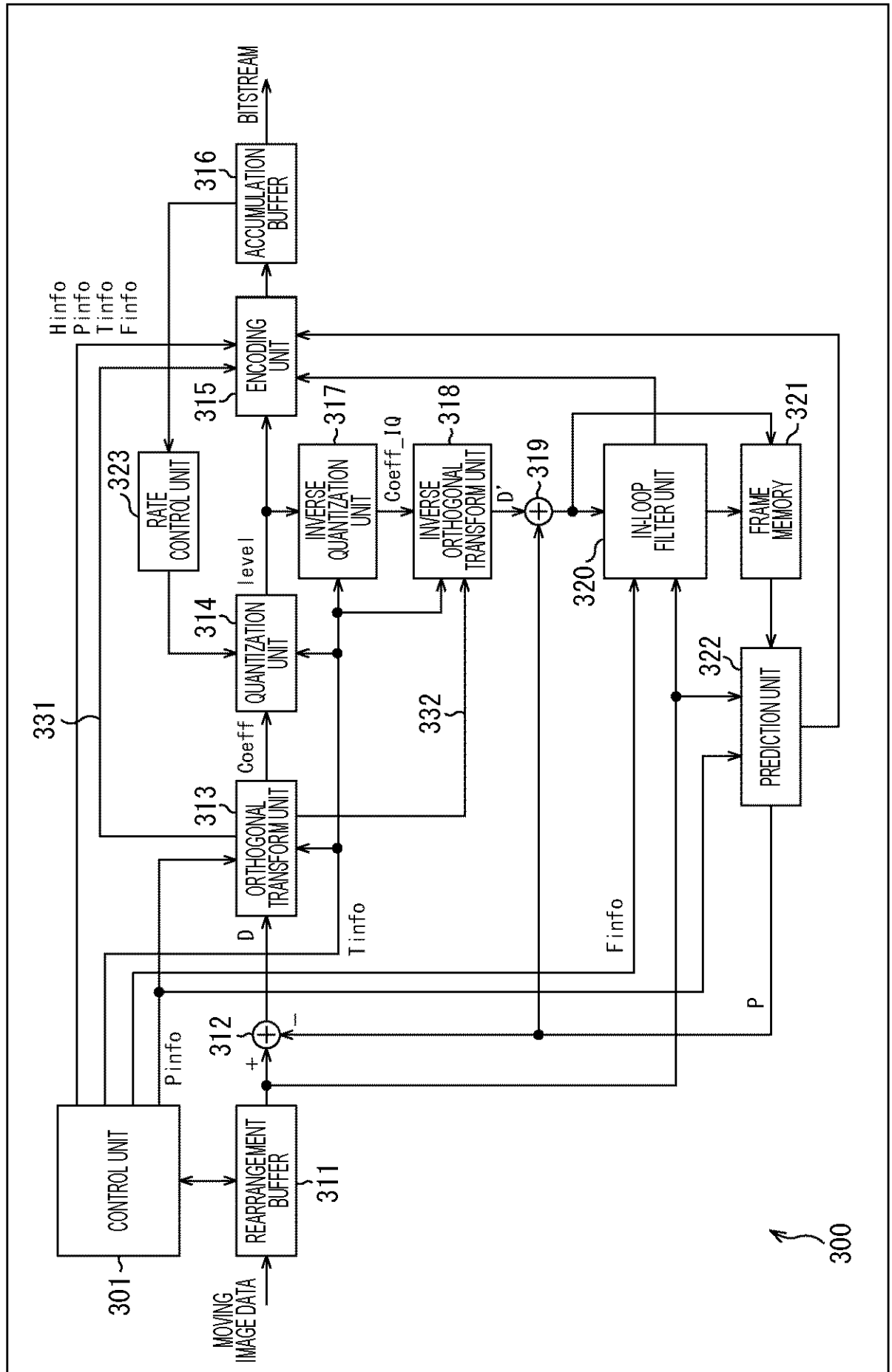


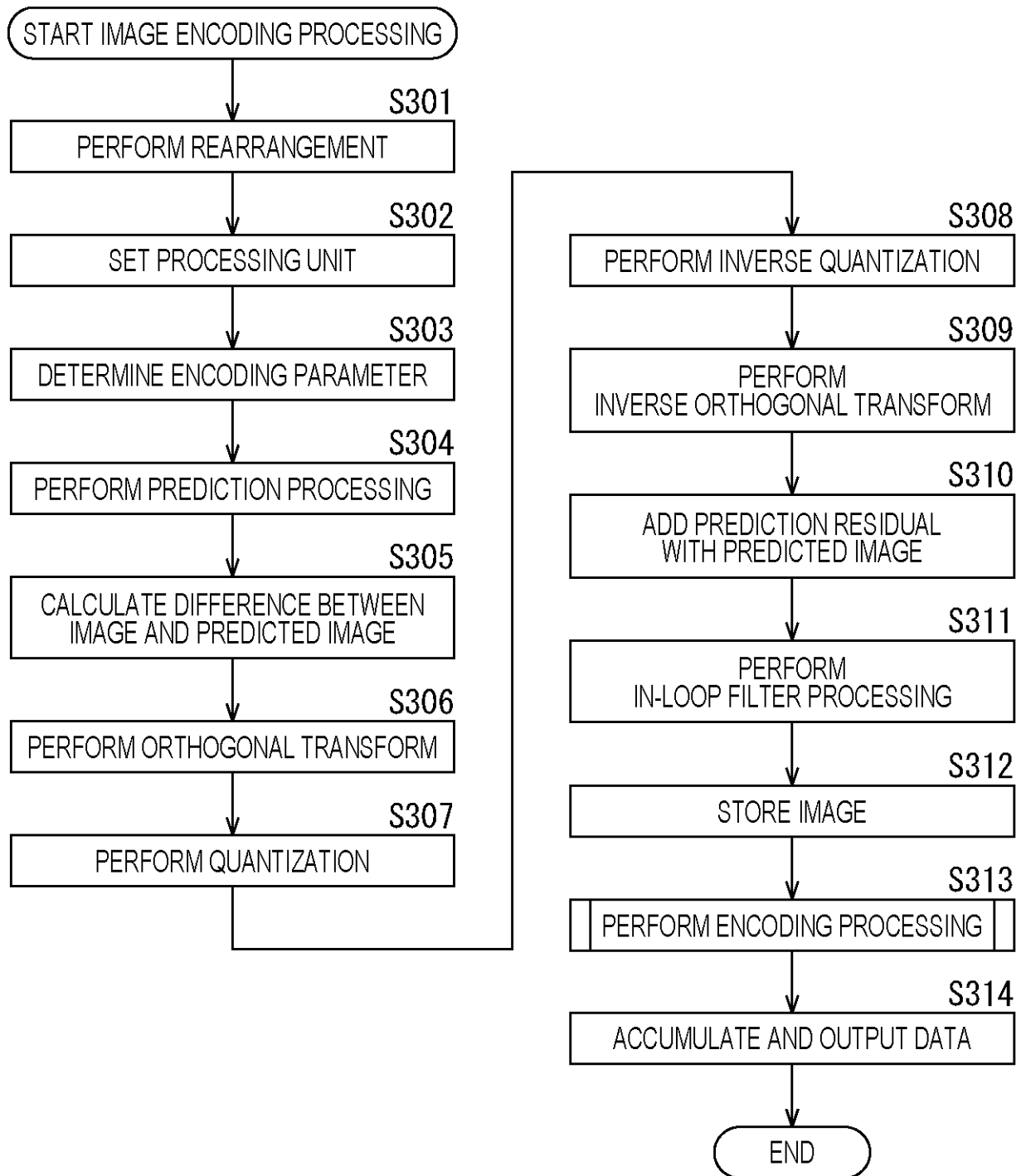
FIG. 16

FIG. 17

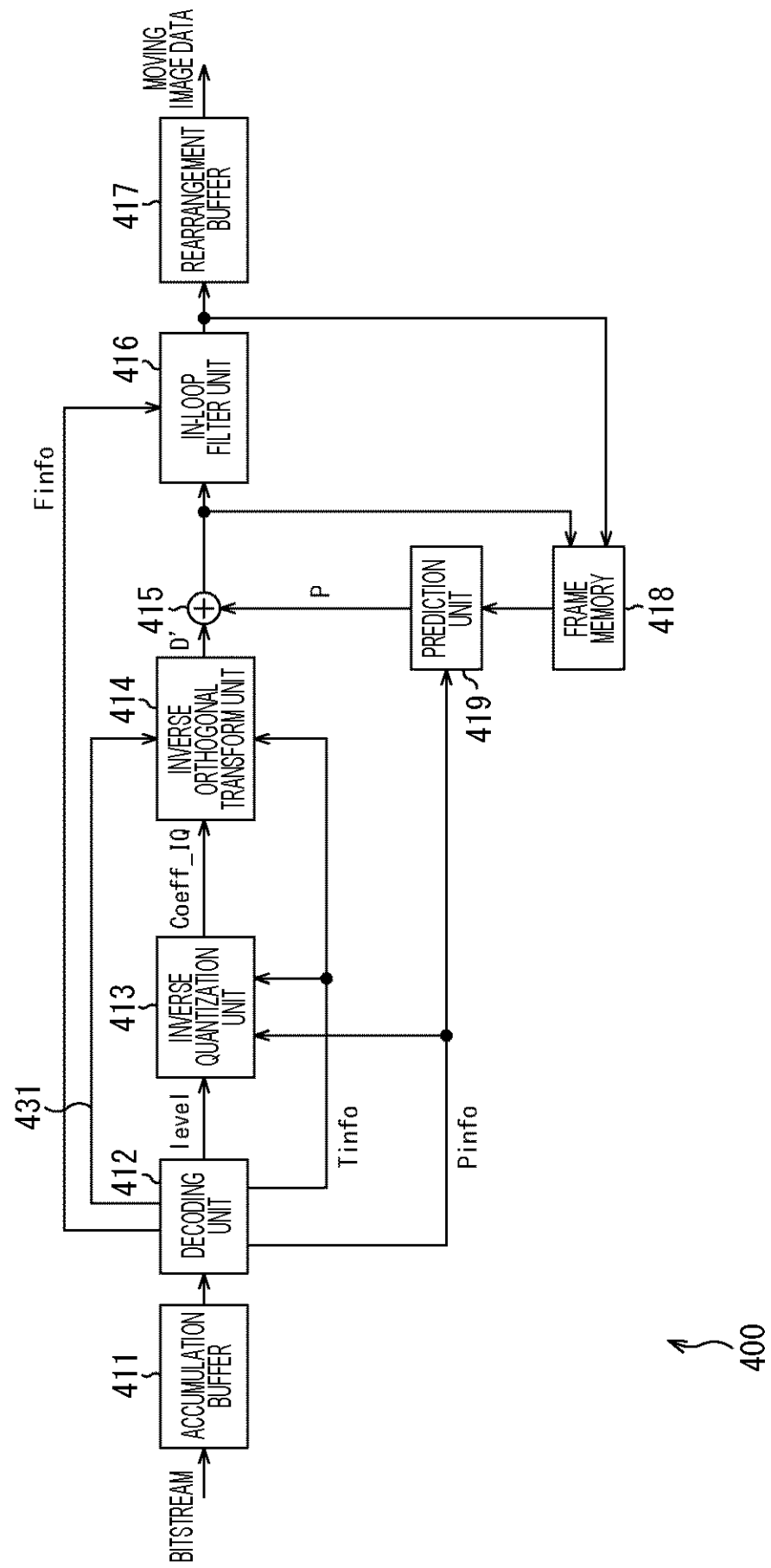


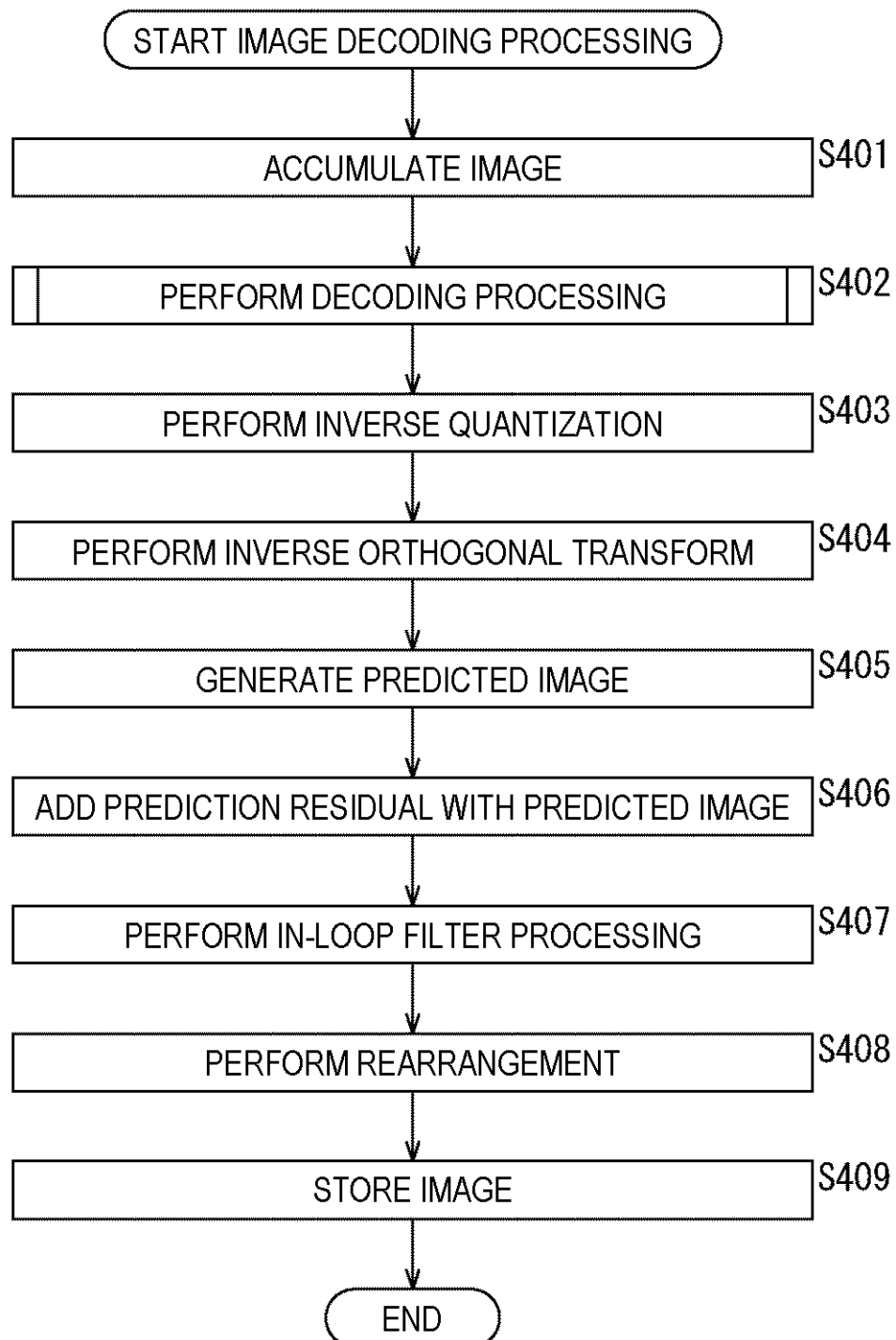
FIG. 18

FIG. 19

