FIG. 1

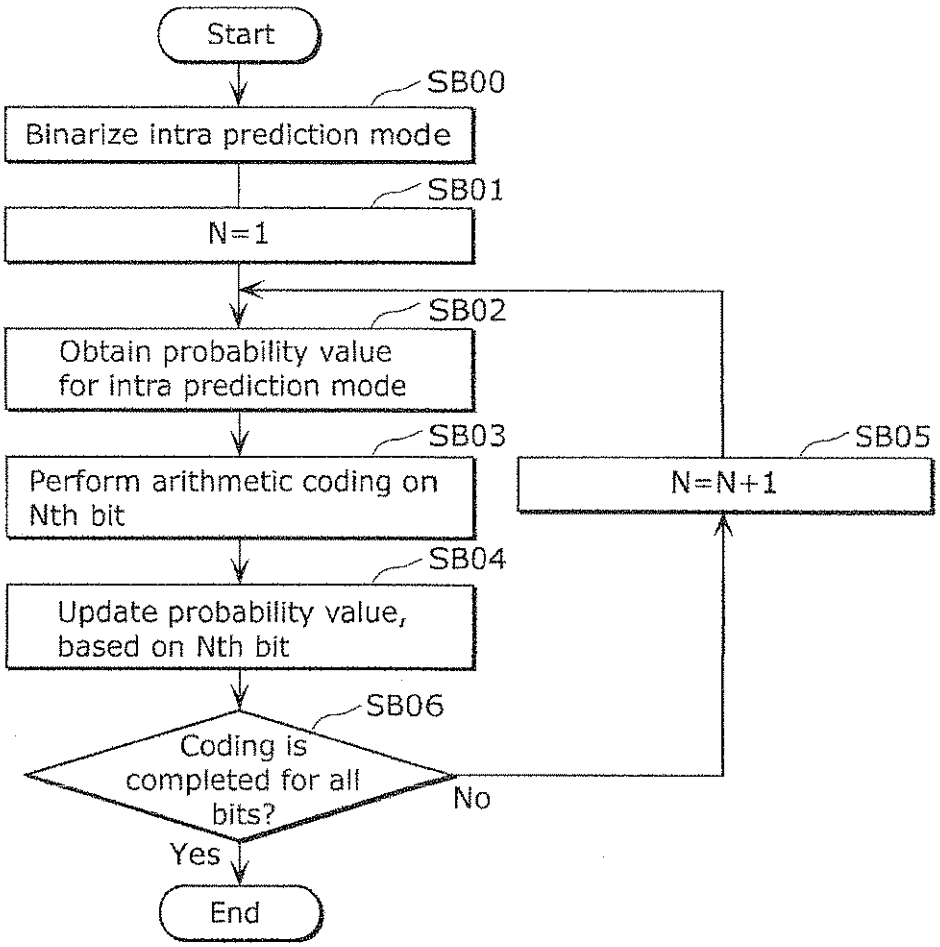

Start
SB00
Binarize intra prediction mode
SB01
N=1
SB02
Obtain probability value for intra prediction mode
SB03
Perform arithmetic coding on Nth bit
SB04
Update probability value, based on Nth bit
SB06
Coding is completed for all bits?
No
Yes
End
SB05
N=N+1

FIG. 2

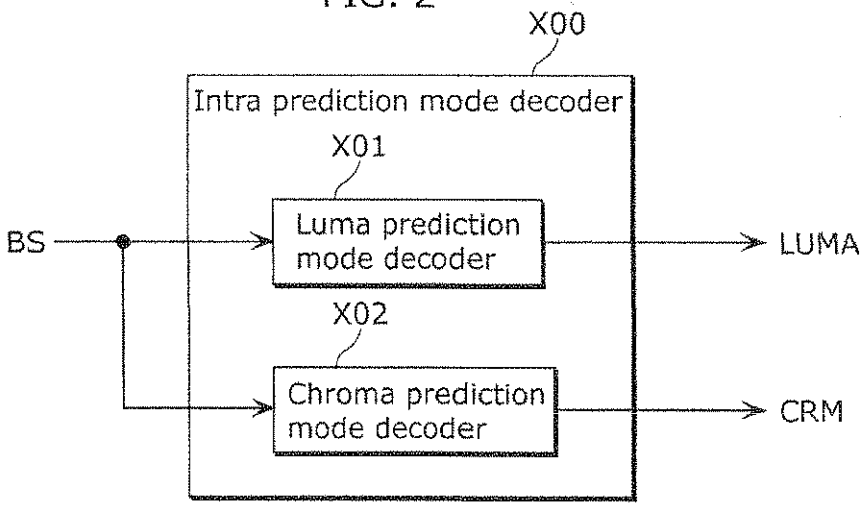

X00
Intra prediction mode decoder
X01
Luma prediction mode decoder
BS
LUMA
X02
Chroma prediction mode decoder
CRM

FIG. 3

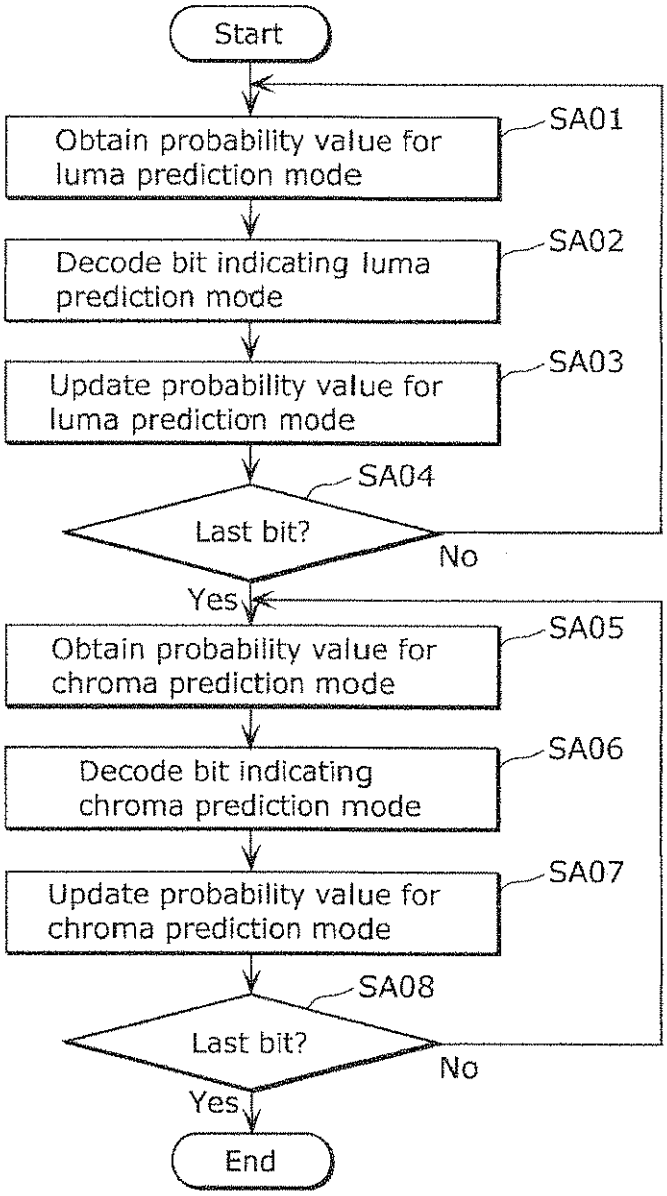

Start
Obtain probability value for luma prediction mode
SA01
Decode bit indicating luma prediction mode
SA02
Update probability value for luma prediction mode
SA03
SA04
Last bit?
No
Yes
Obtain probability value for chroma prediction mode
SA05
Decode bit indicating chroma prediction mode
SA06
Update probability value for chroma prediction mode
SA07
SA08
Last bit?
No
Yes
End

FIG. 4

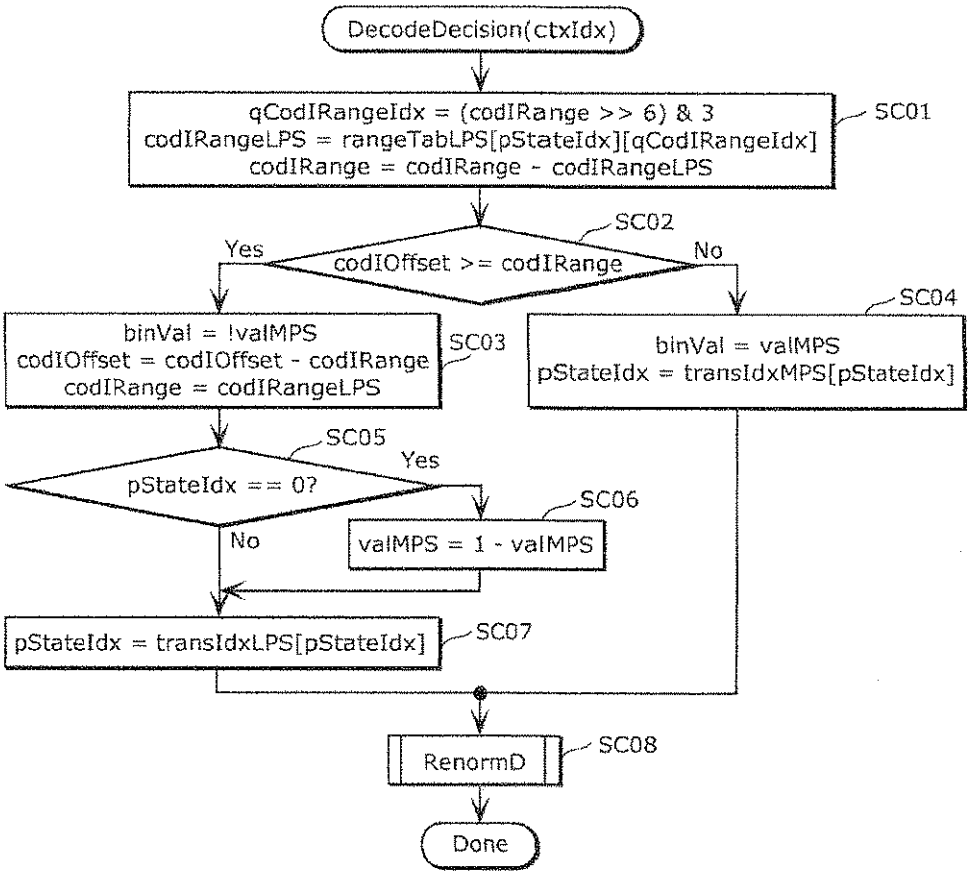

DecodeDecision(ctxIdx)
qCodIRangeIdx = (codIRange >> 6) & 3
codIRangeLPS = rangeTabLPS[pStateIdx][qCodIRangeIdx]
codIRange = codIRange - codIRangeLPS
SC01
SC02
Yes
codIOffset >= codIRange
No
binVal = !valMPS
codIOffset = codIOffset - codIRange
codIRange = codIRangeLPS
SC03
binVal = valMPS
pStateIdx = transIdxMPS[pStateIdx]
SC04
SC05
pStateIdx == 0?
Yes
No
valMPS = 1 - valMPS
SC06
pStateIdx = transIdxLPS[pStateIdx]
SC07
RenormD
SC08
Done

FIG. 5

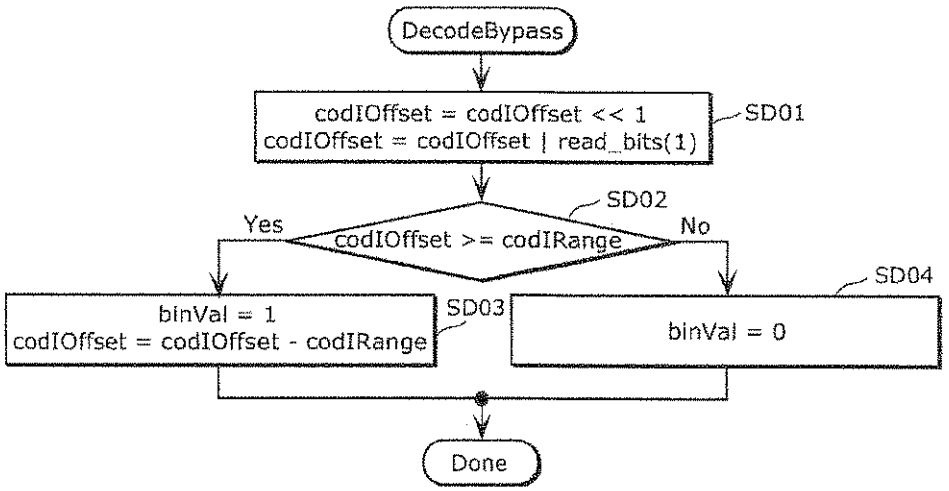

DecodeBypass
codIOffset = codIOffset << 1
codIOffset = codIOffset | read_bits(1)
SD01
SD02
Yes
codIOffset >= codIRange
No
binVal = 1
codIOffset = codIOffset - codIRange
SD03
binVal = 0
SD04
Done

FIG. 6

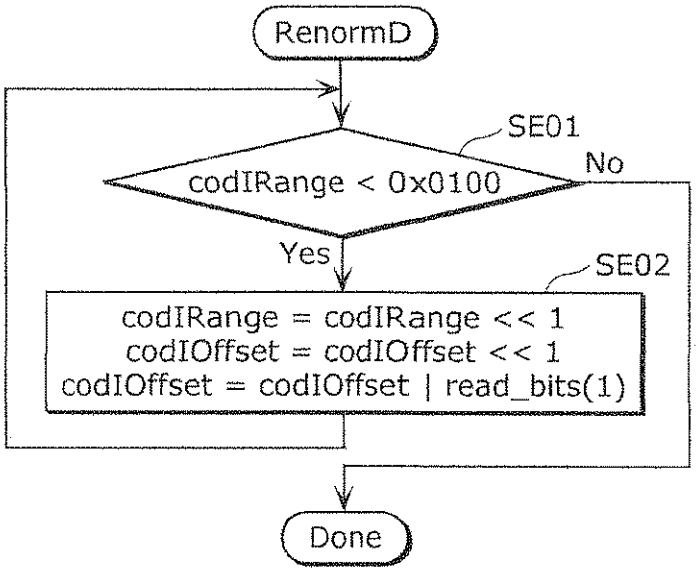

RenormD
SE01
codIRange < 0x0100
No
Yes
SE02
codIRange = codIRange << 1
codIOffset = codIOffset << 1
codIOffset = codIOffset | read_bits(1)
Done

FIG. 7

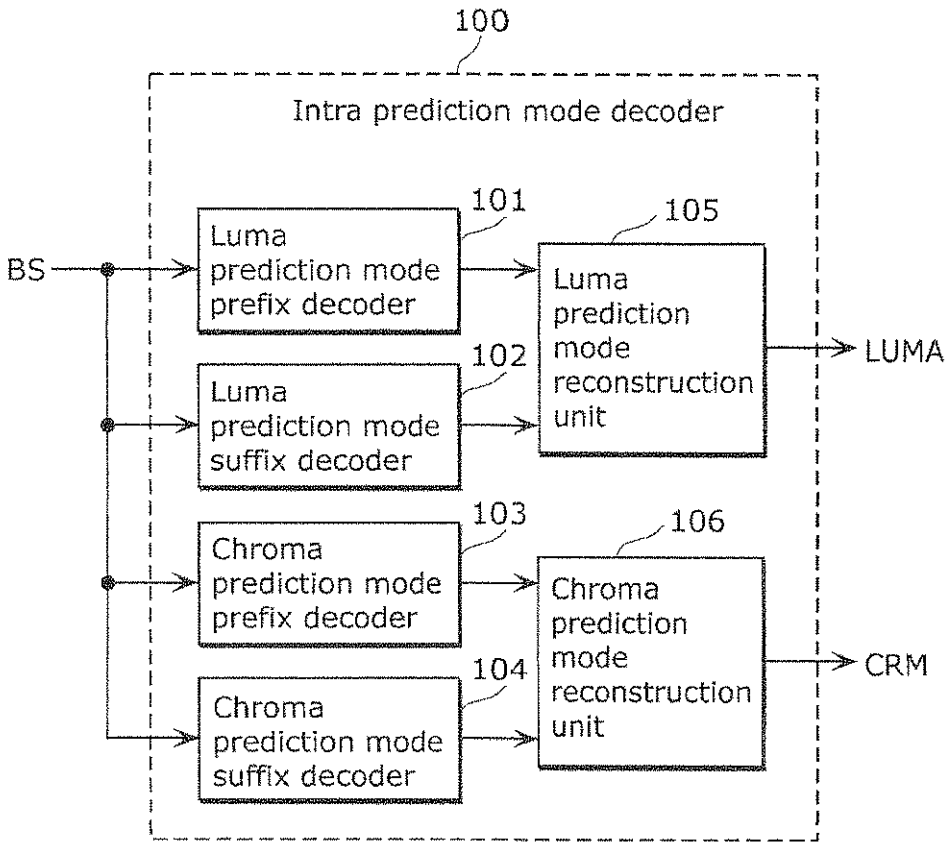

100
Intra prediction mode decoder
BS
101
Luma prediction mode prefix decoder
102
Luma prediction mode suffix decoder
103
Chroma prediction mode prefix decoder
104
Chroma prediction mode suffix decoder
105
Luma prediction mode reconstruction unit
LUMA
106
Chroma prediction mode reconstruction unit
CRM

FIG. 8

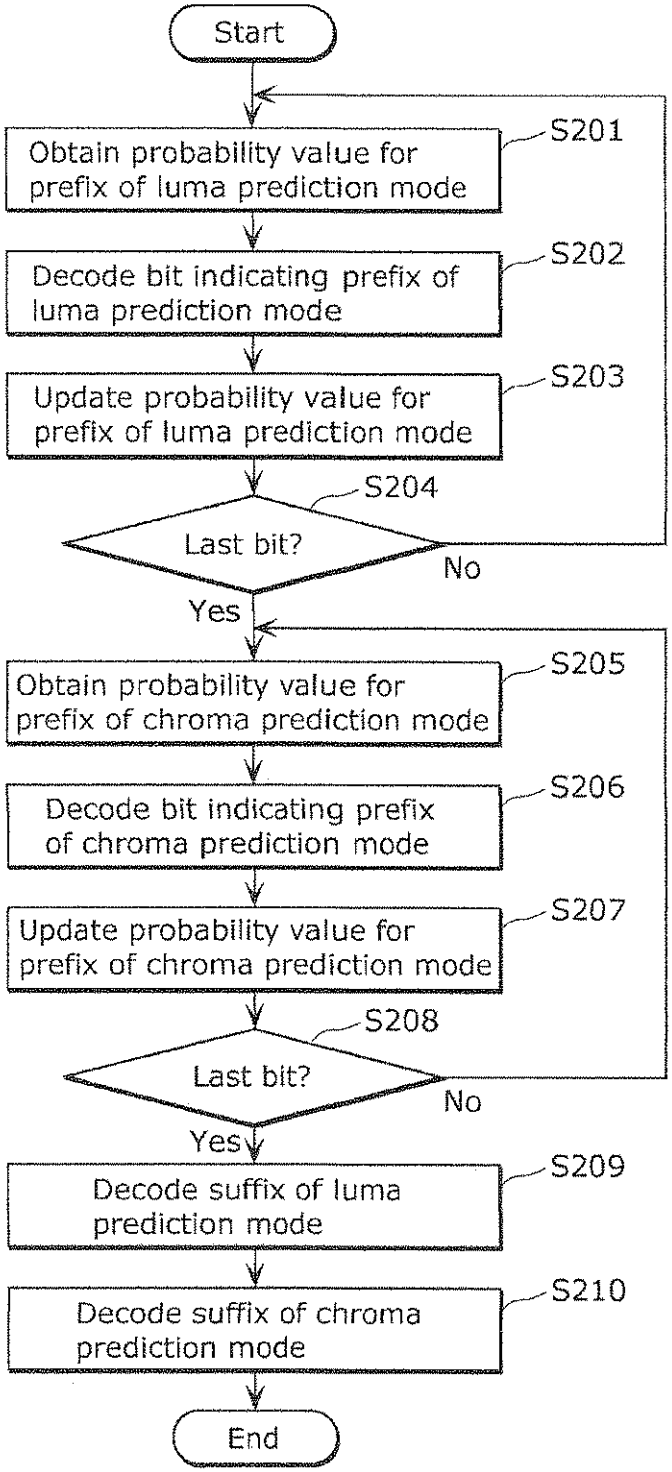

Start
Obtain probability value for prefix of luma prediction mode
S201
Decode bit indicating prefix of luma prediction mode
S202
Update probability value for prefix of luma prediction mode
S203
Last bit?
S204
No
Yes
Obtain probability value for prefix of chroma prediction mode
S205
Decode bit indicating prefix of chroma prediction mode
S206
Update probability value for prefix of chroma prediction mode
S207
Last bit?
S208
No
Yes
Decode suffix of luma prediction mode
S209
Decode suffix of chroma prediction mode
S210
End

FIG. 9

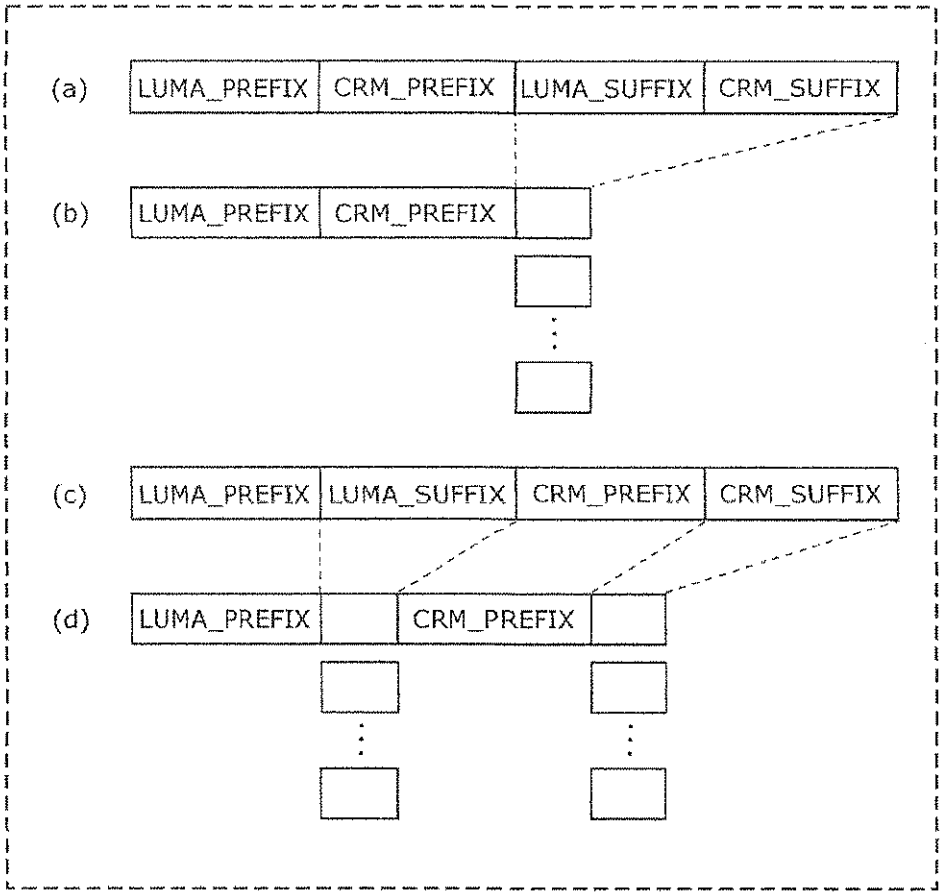

(a)
LUMA_PREFIX
CRM_PREFIX
LUMA_SUFFIX
CRM_SUFFIX
(b)
LUMA_PREFIX
CRM_PREFIX
(c)
LUMA_PREFIX
LUMA_SUFFIX
CRM_PREFIX
CRM_SUFFIX
(d)
LUMA_PREFIX
CRM_PREFIX

FIG. 10

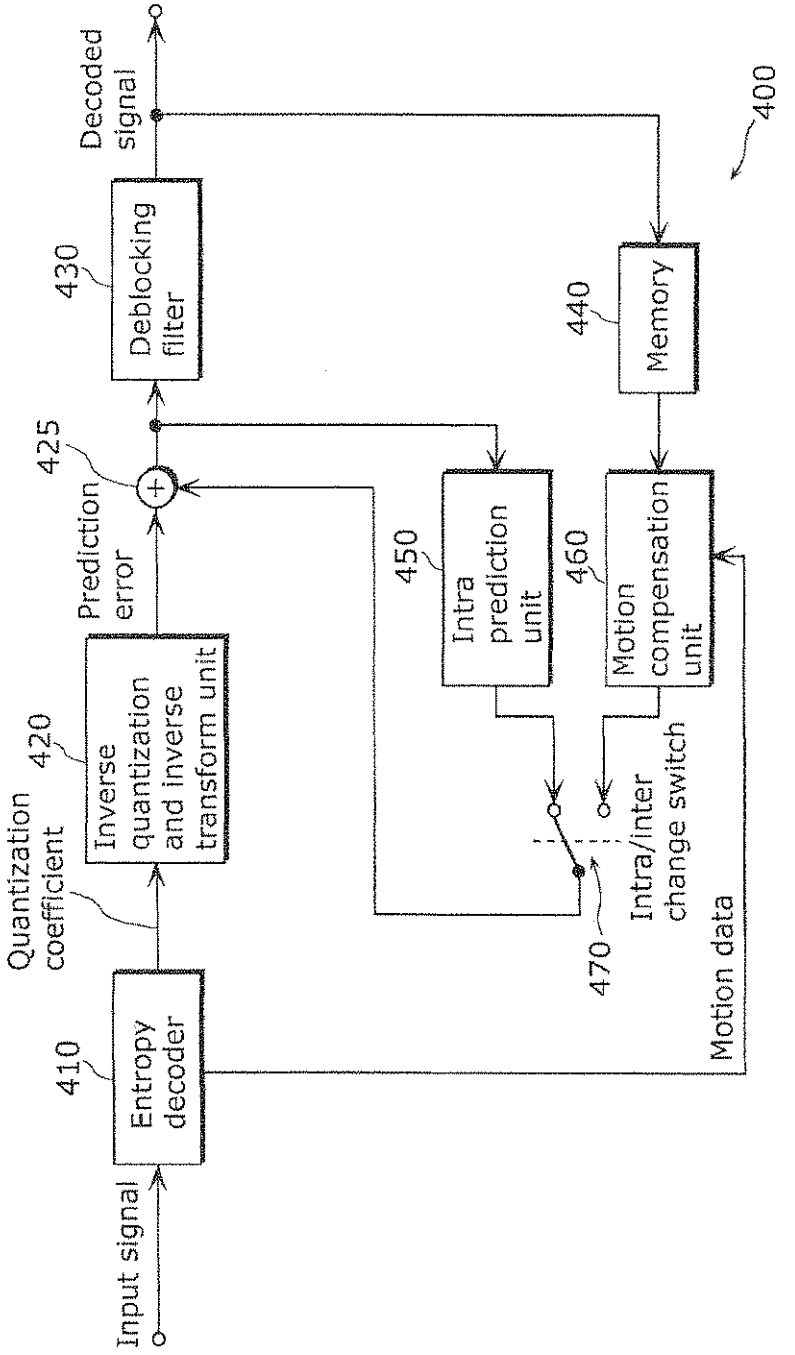

400
Decoded signal
430
Deblocking filter
440
Memory
425
Prediction error
450
Intra prediction unit
460
Motion compensation unit
420
Inverse quantization and inverse transform unit
Quantization coefficient
Intra/inter change switch
470
Motion data
410
Entropy decoder
Input signal

FIG. 11

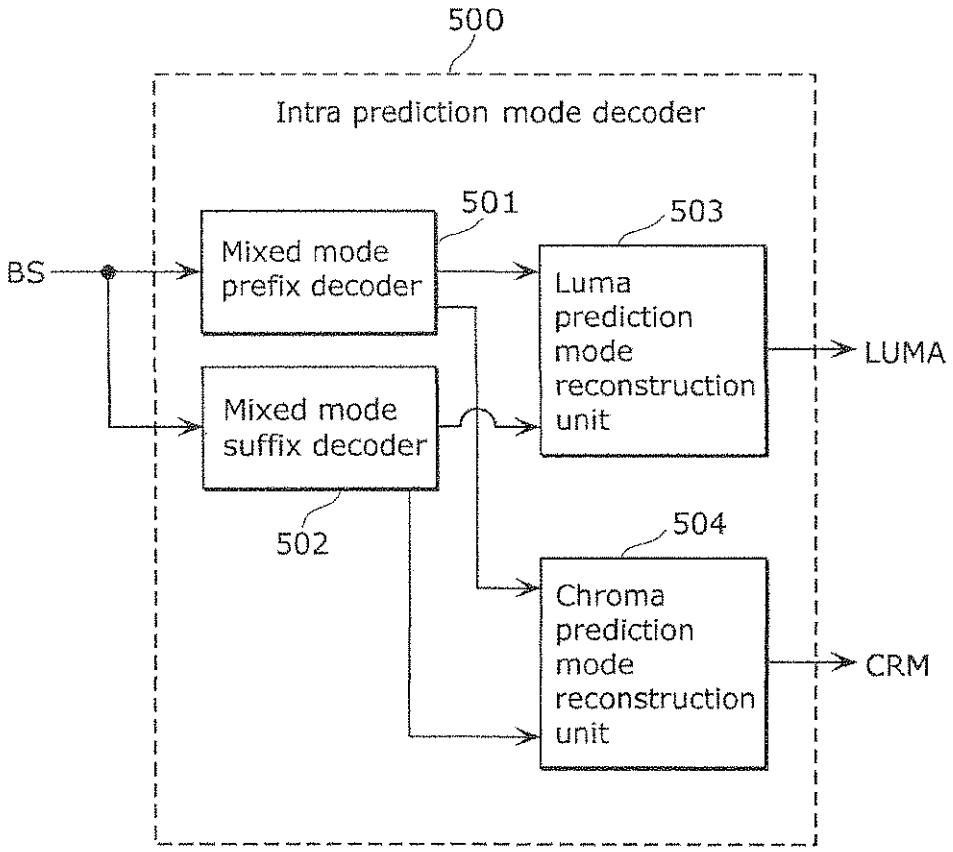


FIG. 12

JOINT_IDX	0	1	2	3	...	...	...
0	1	—	—	—	—	—	—
1	0	1	—	—	—	—	—
2	0	0	1	—	—	—	—
...	...	...	...	...	...	...	...
N-1	0	0	0	0	0	0	1
N	0	0	0	0	0	0	0

FIG. 13

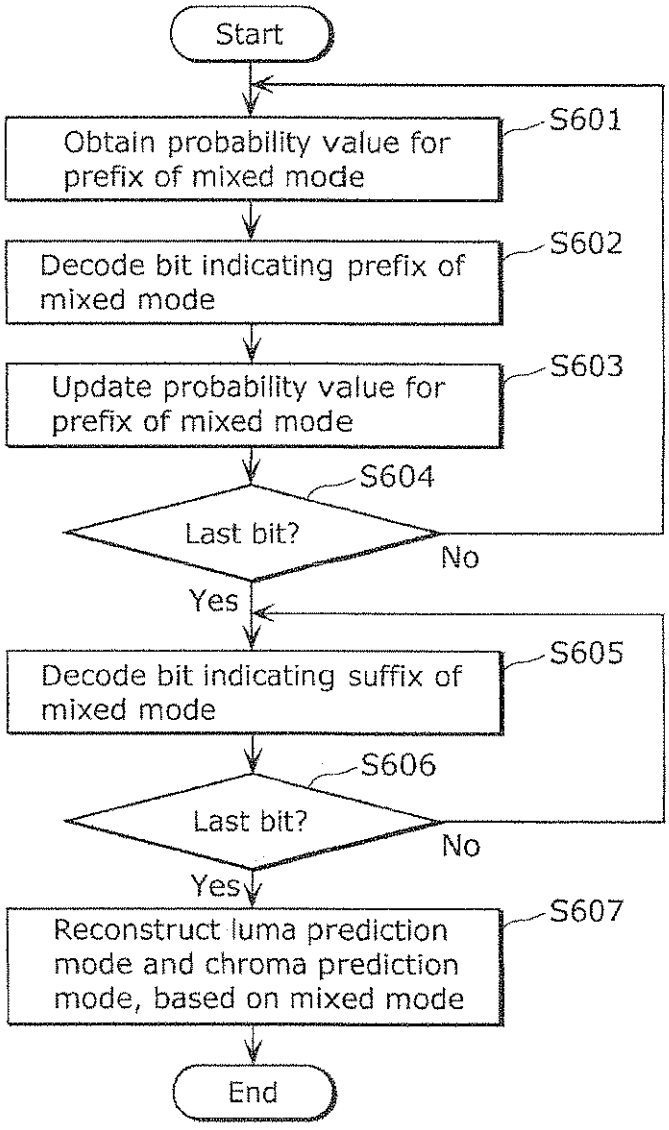

Start
Obtain probability value for prefix of mixed mode
S601
Decode bit indicating prefix of mixed mode
S602
Update probability value for prefix of mixed mode
S603
Last bit?
S604
No
Yes
Decode bit indicating suffix of mixed mode
S605
Last bit?
S606
No
Yes
Reconstruct luma prediction mode and chroma prediction mode, based on mixed mode
S607
End

FIG. 14

prediction_unit(x0, y0, log2PUWidth, log2PUHeight, PartIdx, InferredMergeFlag){	Descriptor
if(skip_flag[x0][y0]){	
if(NumMergeCand>1)	
merge_idx[x0][y0])	ue(v) | ae(v)
} else if(PredMode == MODE_INTRA){	
prev_intra_luma_pred_flag[x0][y0]	u(l) | ae(v)
if(prev_intra_luma_pred_flag[x0][y0])	
if(NumMPMCand>1)	
mpm_idx[x0][y0]	u(i) | ae(v)
else	
Intra_combo_pred_mode[x0][y0]	ue(v) | ae(v)
	ue(v) | ae(v)
} else {/*MODE_INTER*/	

FIG. 15

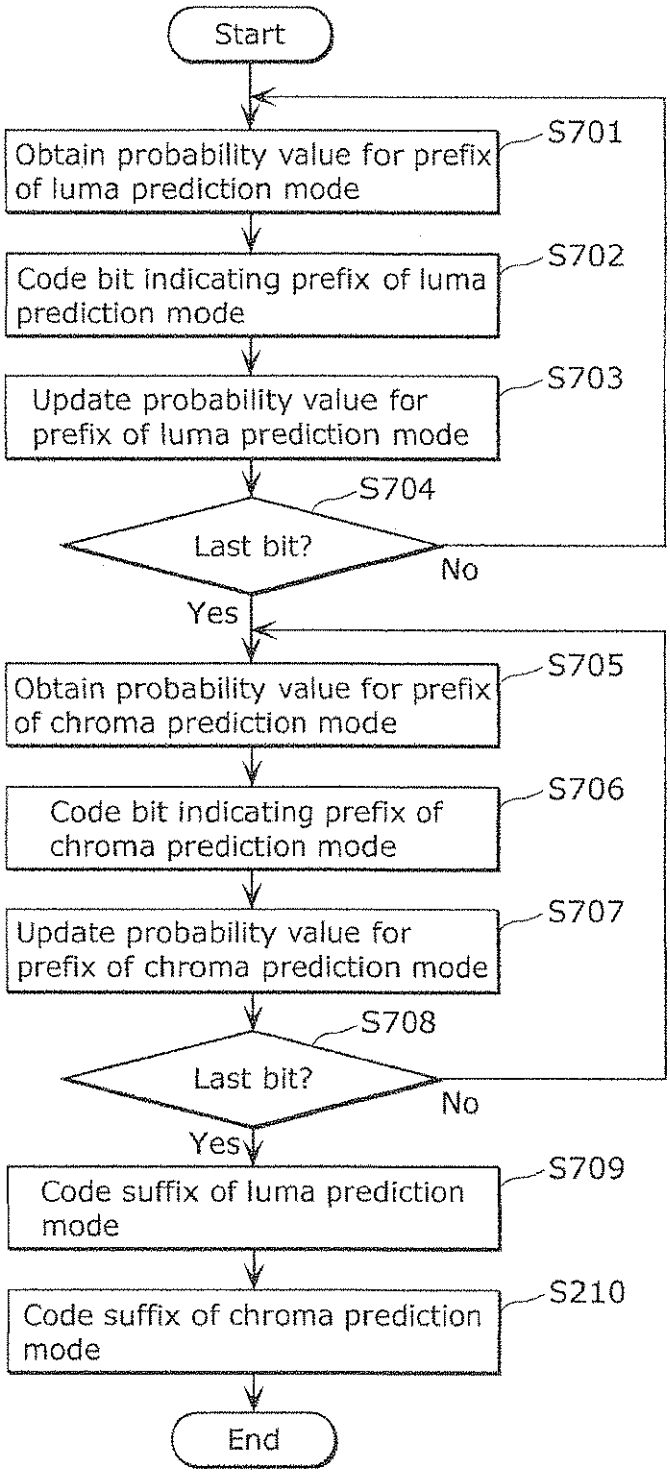

Start
Obtain probability value for prefix of luma prediction mode
S701
Code bit indicating prefix of luma prediction mode
S702
Update probability value for prefix of luma prediction mode
S703
S704
Last bit?
No
Yes
Obtain probability value for prefix of chroma prediction mode
S705
Code bit indicating prefix of chroma prediction mode
S706
Update probability value for prefix of chroma prediction mode
S707
S708
Last bit?
No
Yes
Code suffix of luma prediction mode
S709
Code suffix of chroma prediction mode
S210
End

FIG. 16

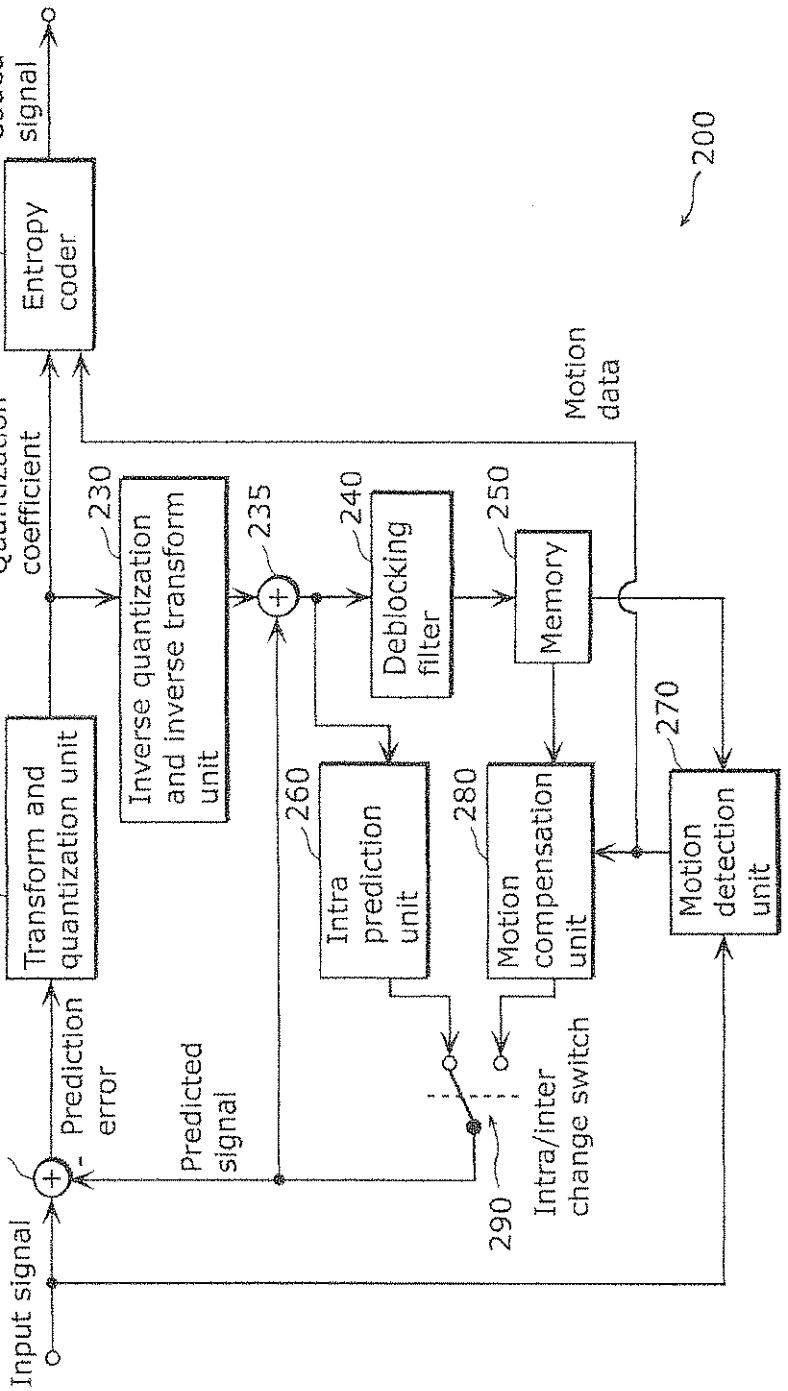

Input signal
205
Prediction error
Predicted signal
210
Transform and quantization unit
Quantization coefficient
220
Entropy coder
Coded signal
230
Inverse quantization and inverse transform unit
235
240
Deblocking filter
250
Memory
260
Intra prediction unit
280
Motion compensation unit
270
Motion detection unit
Motion data
290
Intra/inter change switch
200

FIG. 17

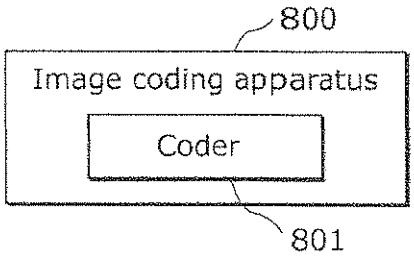


FIG. 18

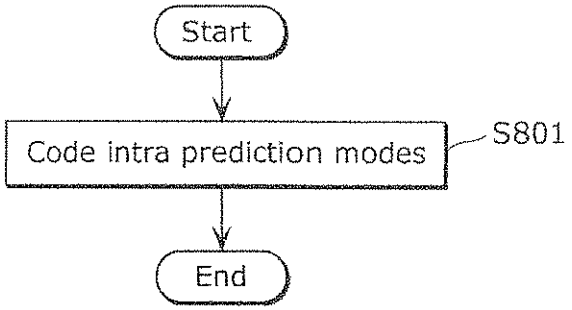


FIG. 19

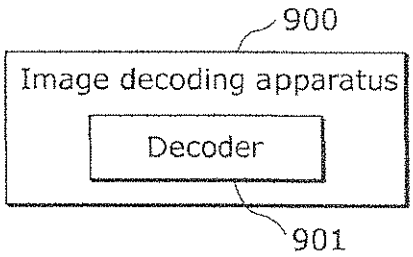


FIG. 20

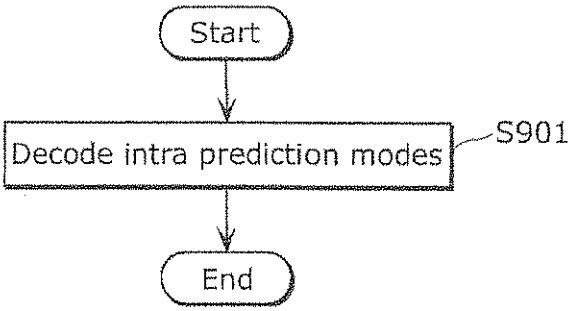


FIG. 21

prev_intra_luma_pred_flag	Context adaptive binary arithmetic coding
if(prev_intra_luma_pred_flag)	
mpm_idx	Bypass coding
else	
rem_intra_luma_pred_mode	Bypass coding
intra_chroma_pred_mode	Context adaptive binary arithmetic coding + Bypass coding

FIG. 22

prev_intra_luma_pred_flag

(Context adaptive binary arithmetic coding)

mpm_idx	rem_intra_luma_pred_mode
0	0
1	1
2	2
(Bypass coding)	3
	4
	⋮
	(Bypass coding)

FIG. 23

intra_chroma_pred_mode	
0	0
1	1 0 0
2	1 0 1
3	1 1 0
4	1 1 1

Context adaptive binary arithmetic coding

Bypass coding

FIG. 24

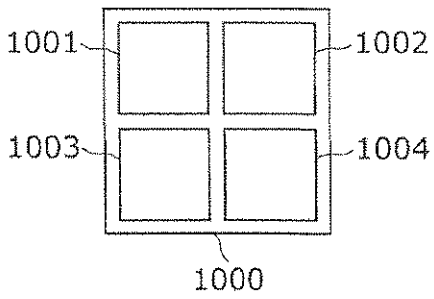


FIG. 25

prev_intra_luma_pred_flag	Context adaptive binary arithmetic coding
if(prev_intra_luma_pred_flag)	
mpm_idx	Bypass coding
else	
rem_intra_luma_pred_mode	Bypass coding

prev_intra_luma_pred_flag	Context adaptive binary arithmetic coding
if(prev_intra_luma_pred_flag)	
mpm_idx	Bypass coding
else	
rem_intra_luma_pred_mode	Bypass coding

prev_intra_luma_pred_flag	Context adaptive binary arithmetic coding
if(prev_intra_luma_pred_flag)	
mpm_idx	Bypass coding
else	
rem_intra_luma_pred_mode	Bypass coding

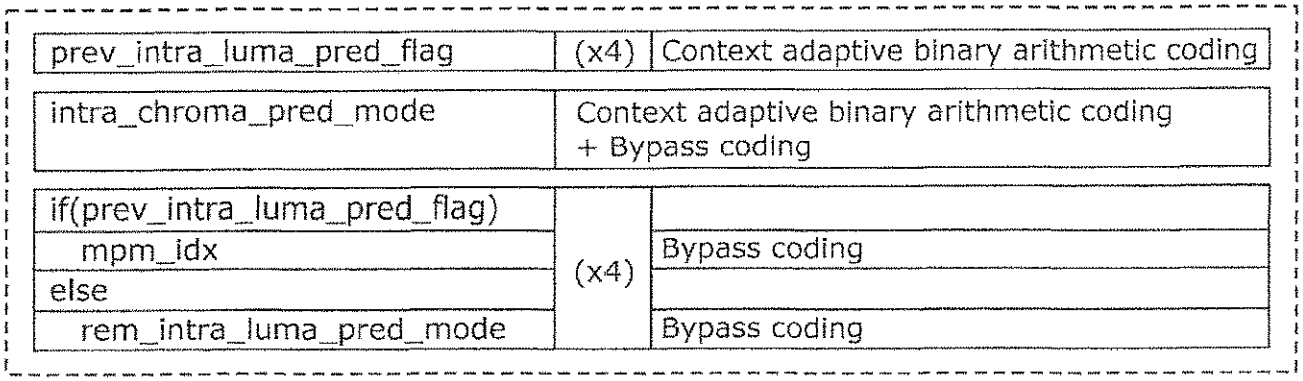
prev_intra_luma_pred_flag	Context adaptive binary arithmetic coding
if(prev_intra_luma_pred_flag)	
mpm_idx	Bypass coding
else	
rem_intra_luma_pred_mode	Bypass coding

intra_chroma_pred_mode	Context adaptive binary arithmetic coding + Bypass coding

FIG. 26

prev_intra_luma_pred_flag	x4	Context adaptive binary arithmetic coding
if(prev_intra_luma_pred_flag)	x4	
mpm_idx		Bypass coding
else		
rem_intra_luma_pred_mode		Bypass coding
intra_chroma_pred_mode	Context adaptive binary arithmetic coding + Bypass coding	

FIG. 27



prev_intra_luma_pred_flag	(x4)	Context adaptive binary arithmetic coding
intra_chroma_pred_mode	Context adaptive binary arithmetic coding + Bypass coding	
if(prev_intra_luma_pred_flag)	(x4)	
mpm_idx		Bypass coding
else		
rem_intra_luma_pred_mode		Bypass coding

FIG. 28

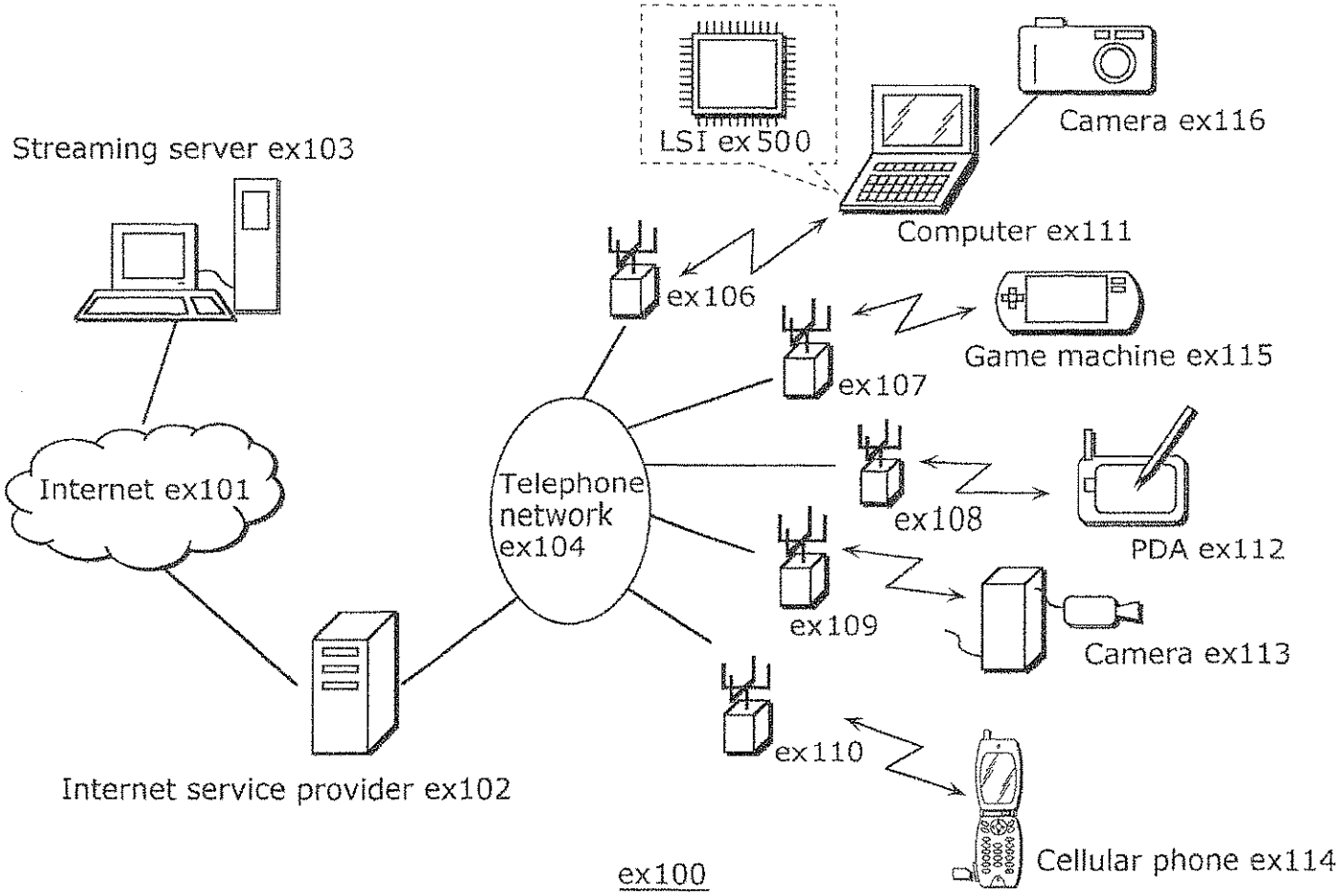

LSI ex500
Camera ex116
Streaming server ex103
Computer ex111
ex106
ex107
Game machine ex115
Internet ex101
Telephone network ex104
ex108
PDA ex112
ex109
Camera ex113
ex110
Internet service provider ex102
Cellular phone ex114
ex100

FIG. 29

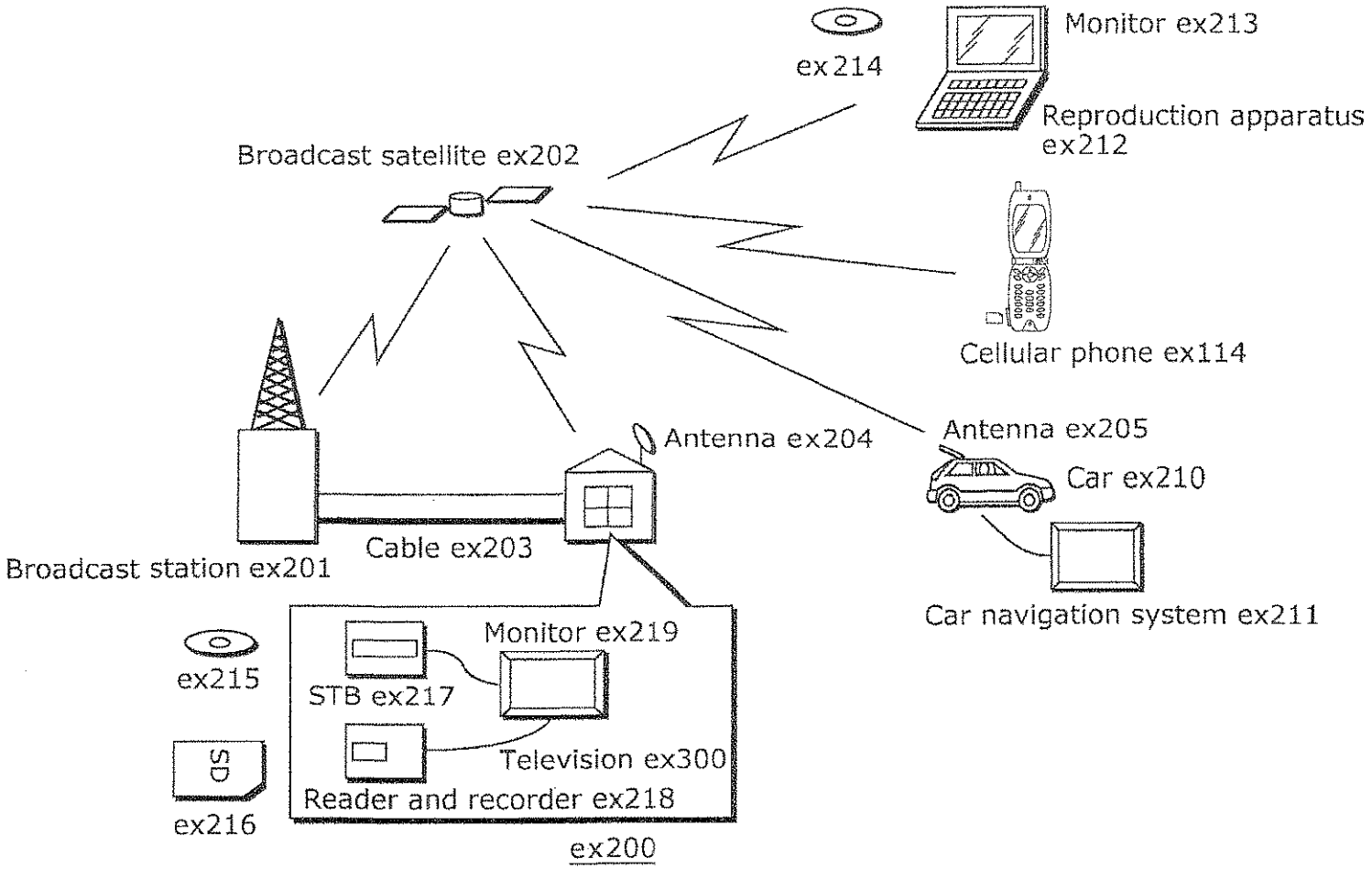

ex214
Monitor ex213
Reproduction apparatus ex212
Broadcast satellite ex202
Cellular phone ex114
Antenna ex204
Antenna ex205
Car ex210
Broadcast station ex201
Cable ex203
Car navigation system ex211
Monitor ex219
ex215
STB ex217
SD
Television ex300
Reader and recorder ex218
ex216
ex200

FIG. 30

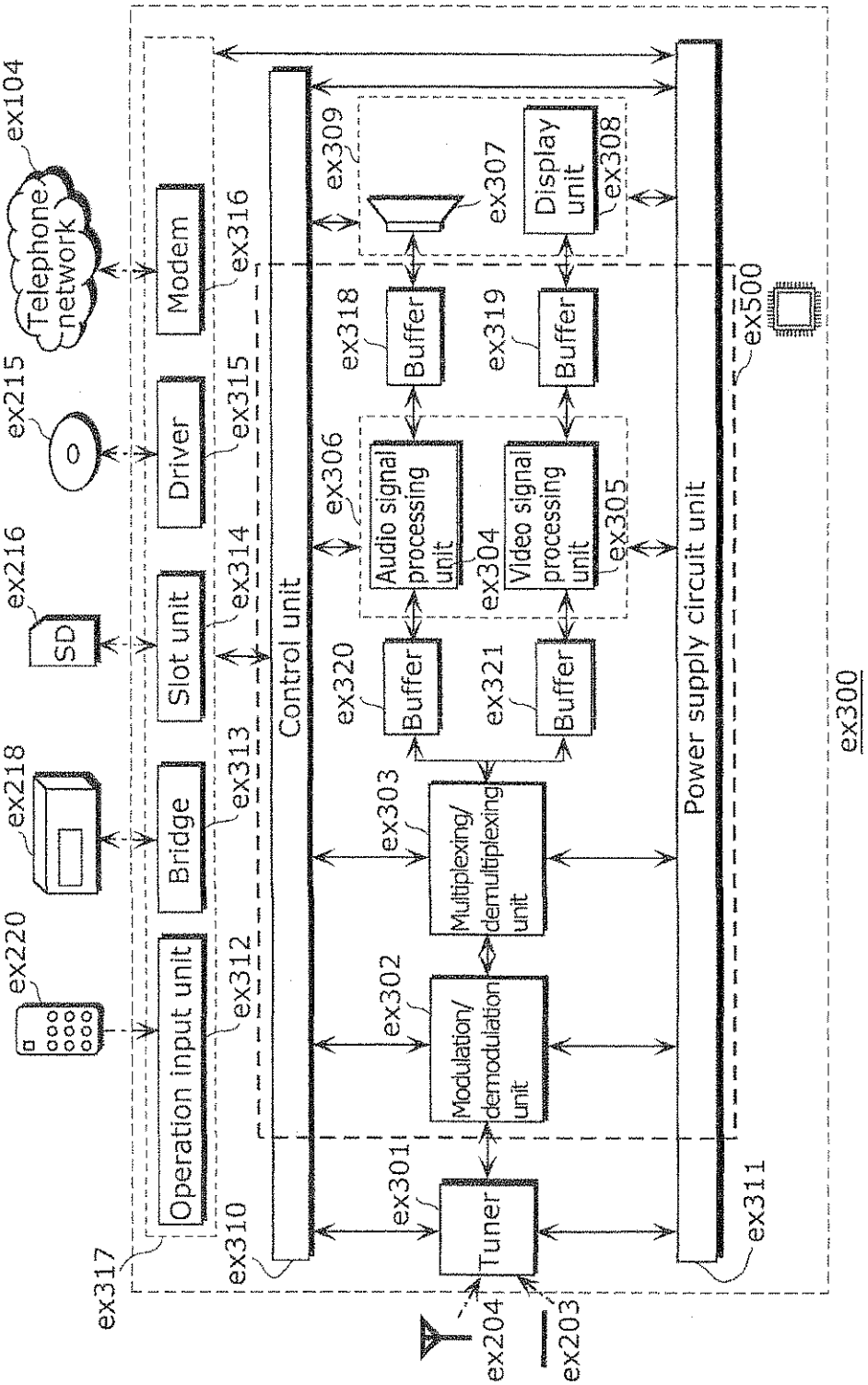

ex104
Telephone network
ex215
ex216
SD
ex218
ex220
ex317
ex204
ex203
ex310
Operation input unit
ex312
Bridge
ex313
Slot unit
ex314
Driver
ex315
Modem
ex316
Control unit
ex320
Buffer
ex321
Buffer
ex303
Multiplexing/ demultiplexing unit
ex302
Modulation/ demodulation unit
ex301
Tuner
ex306
Audio signal processing unit
ex304
Video signal processing unit
ex305
ex318
Buffer
ex319
Buffer
ex307
ex309
Display unit
ex308
ex500
Power supply circuit unit
ex311
ex300

FIG. 31

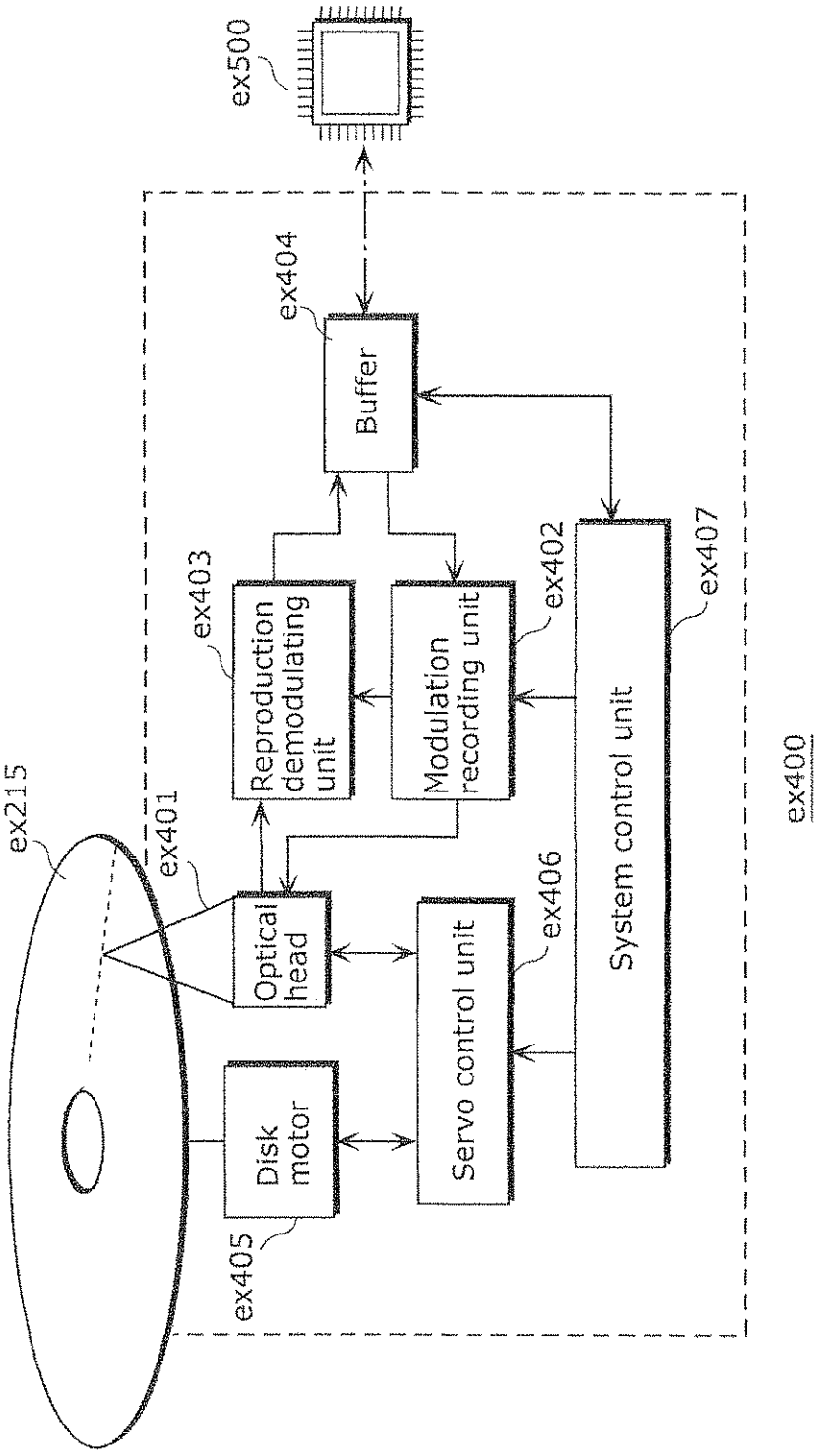

ex500
ex404
Buffer
ex403
Reproduction demodulating unit
ex402
Modulation recording unit
ex407
System control unit
ex400
ex215
ex401
Optical head
ex406
Servo control unit
Disk motor
ex405

FIG. 32

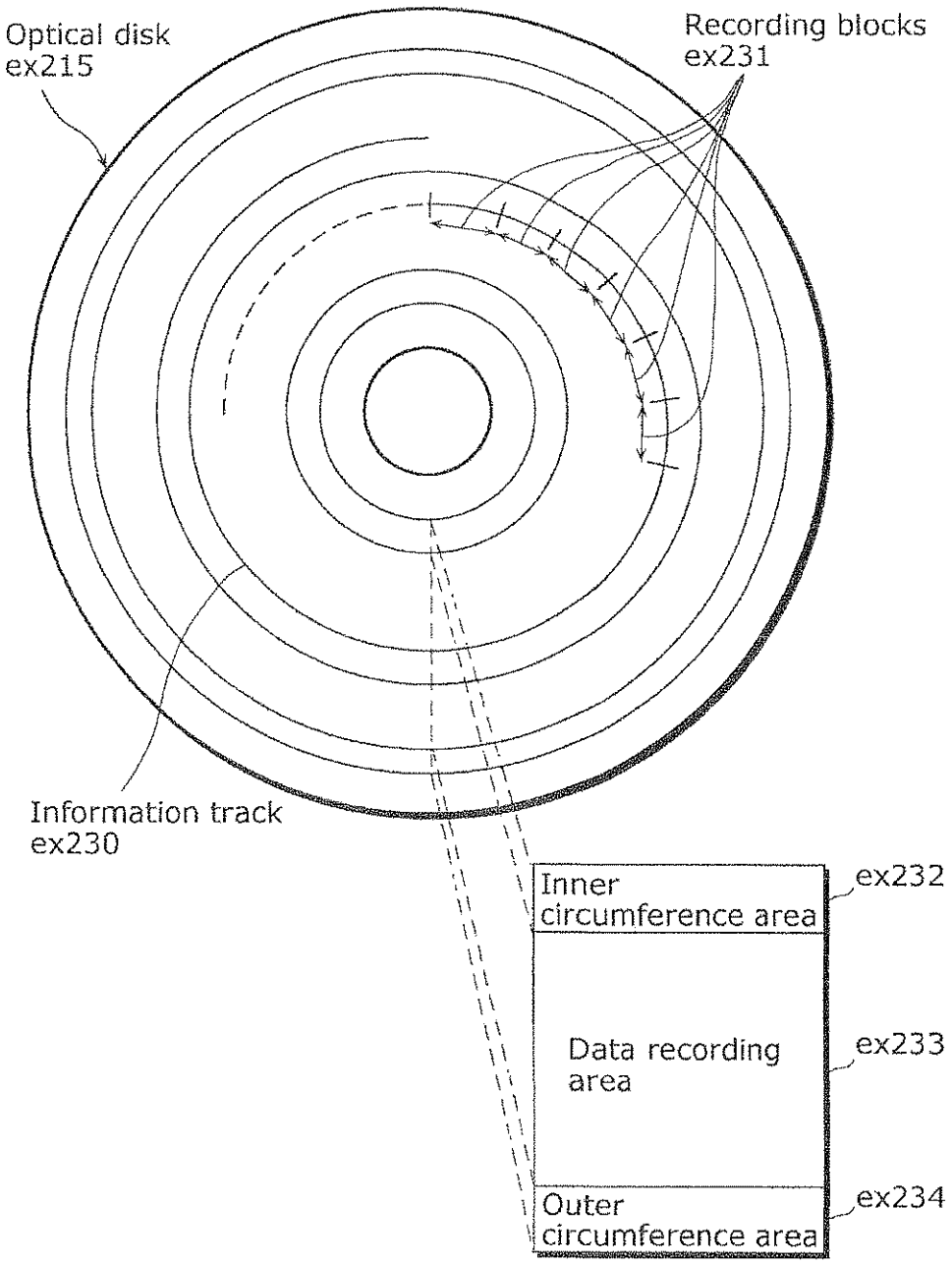

Optical disk
ex215
Recording blocks
ex231
Information track
ex230
Inner
circumference area
ex232
Data recording
area
ex233
Outer
circumference area
ex234

FIG. 33A

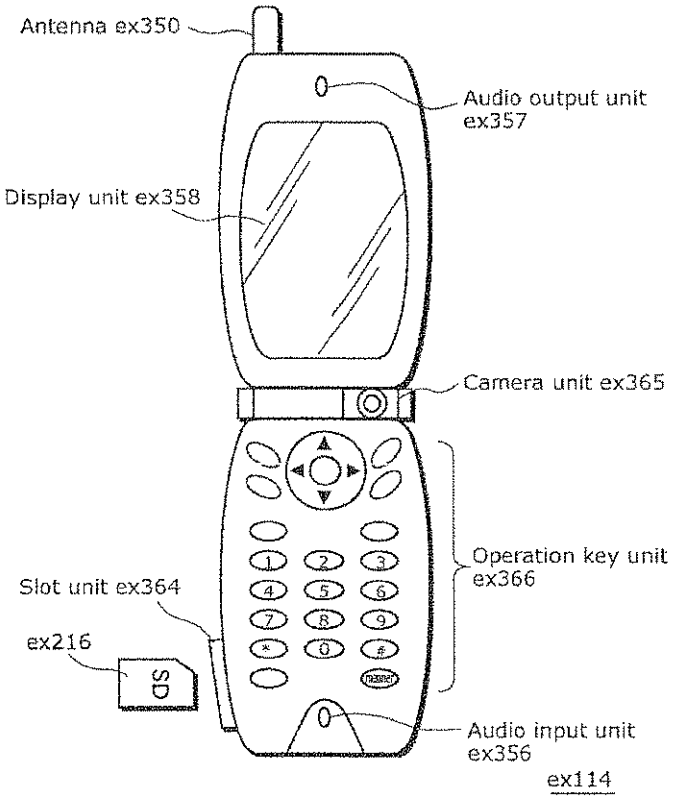


FIG. 33B

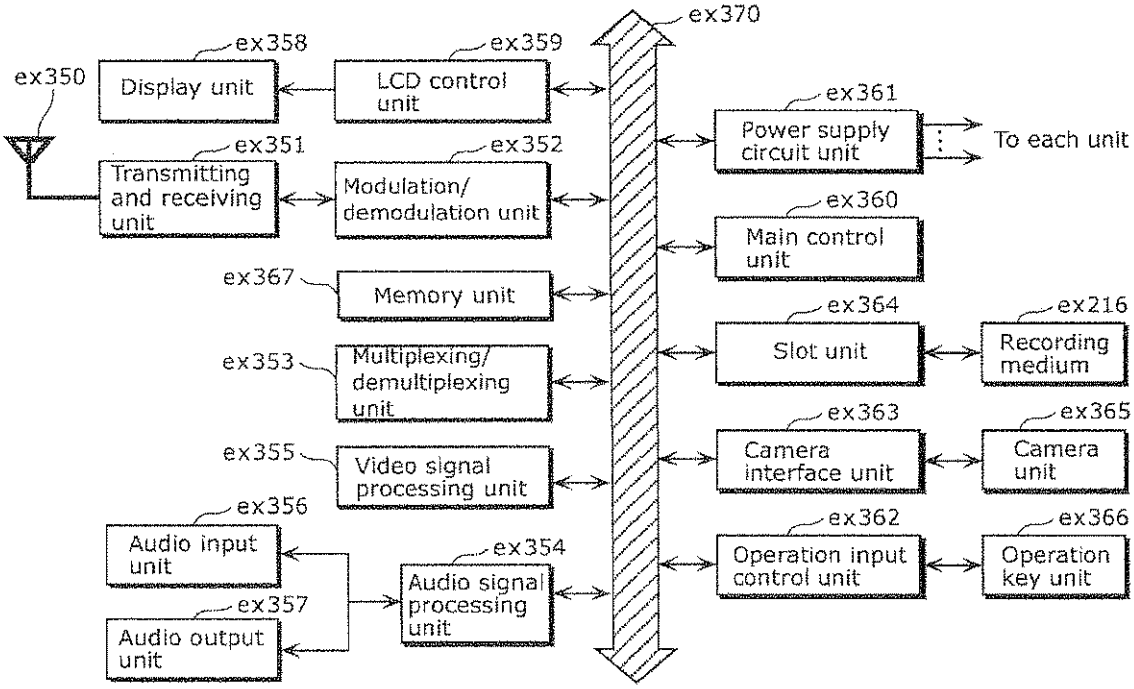


FIG. 34

Video stream (PID=0x1011, Primary video)
Audio stream (PID=0x1100)
Audio stream (PID=0x1101)
Presentation graphics stream (PID=0x1200)
Presentation graphics stream (PID=0x1201)
Interactive graphics stream (PID=0x1400)
Video stream (PID=0x1B00, Secondary video)
Video stream (PID=0x1B01, Secondary video)

FIG. 35

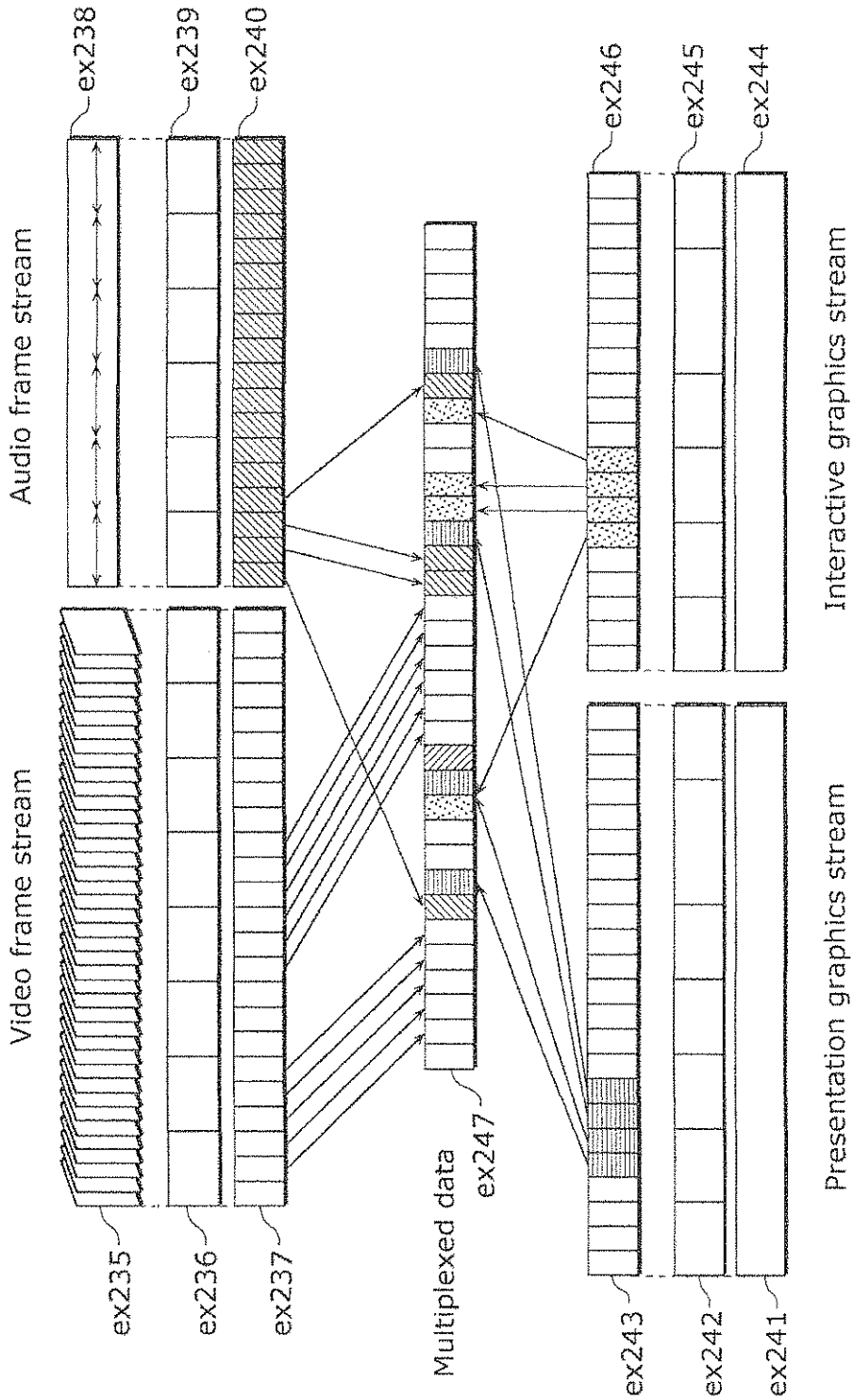

Video frame stream
Audio frame stream
Presentation graphics stream
Interactive graphics stream
Multiplexed data
ex235
ex236
ex237
ex238
ex239
ex240
ex241
ex242
ex243
ex244
ex245
ex246
ex247

FIG. 36

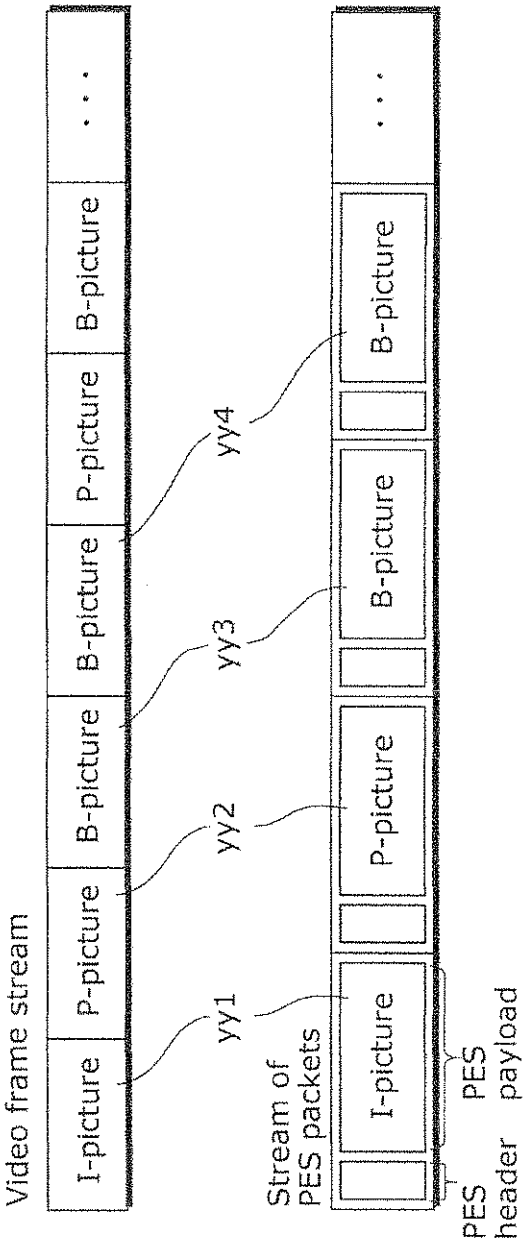

Video frame stream
I-picture
P-picture
B-picture
B-picture
P-picture
B-picture
. . .
yy1
yy2
yy3
yy4
Stream of PES packets
I-picture
P-picture
B-picture
B-picture
. . .
PES header
PES payload

FIG. 37

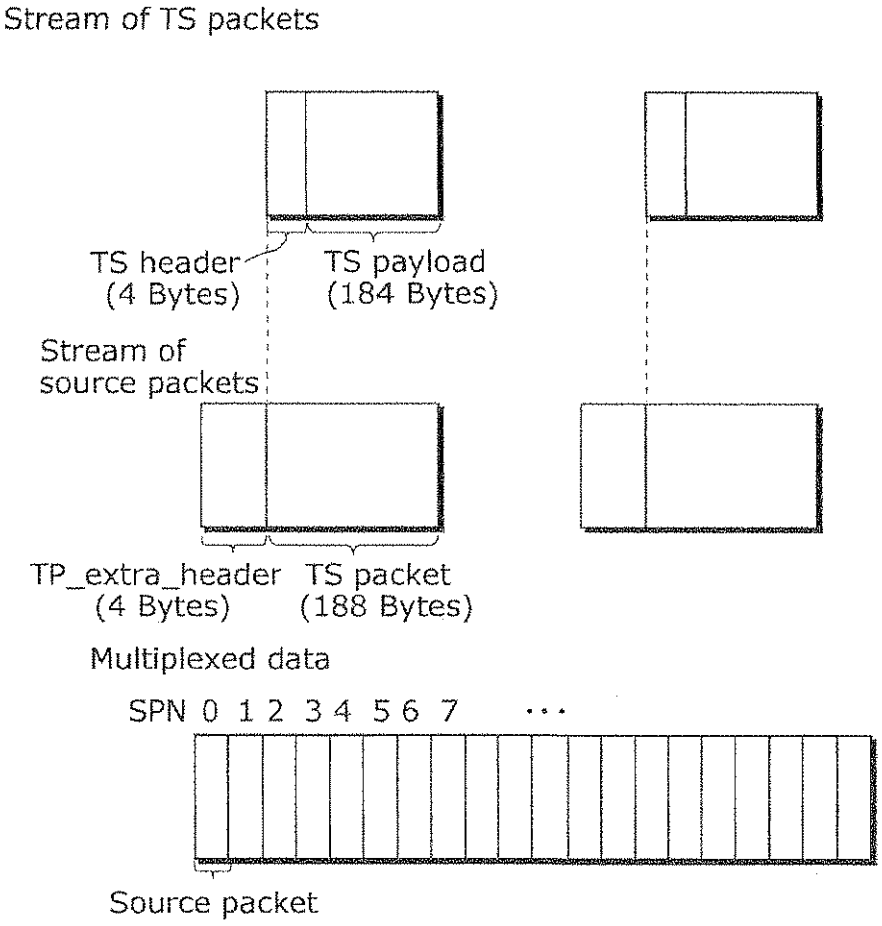

Stream of TS packets
TS header
(4 Bytes)
TS payload
(184 Bytes)
Stream of
source packets
TP_extra_header
(4 Bytes)
TS packet
(188 Bytes)
Multiplexed data
SPN 0 1 2 3 4 5 6 7 ...
Source packet

FIG. 38

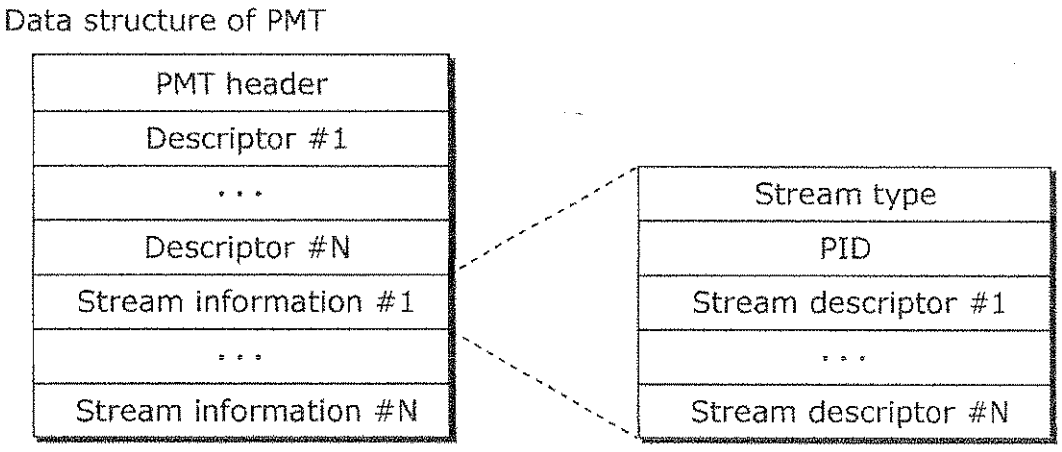

Data structure of PMT
PMT header
Descriptor #1
...
Descriptor #N
Stream information #1
...
Stream information #N
Stream type
PID
Stream descriptor #1
...
Stream descriptor #N

FIG. 39

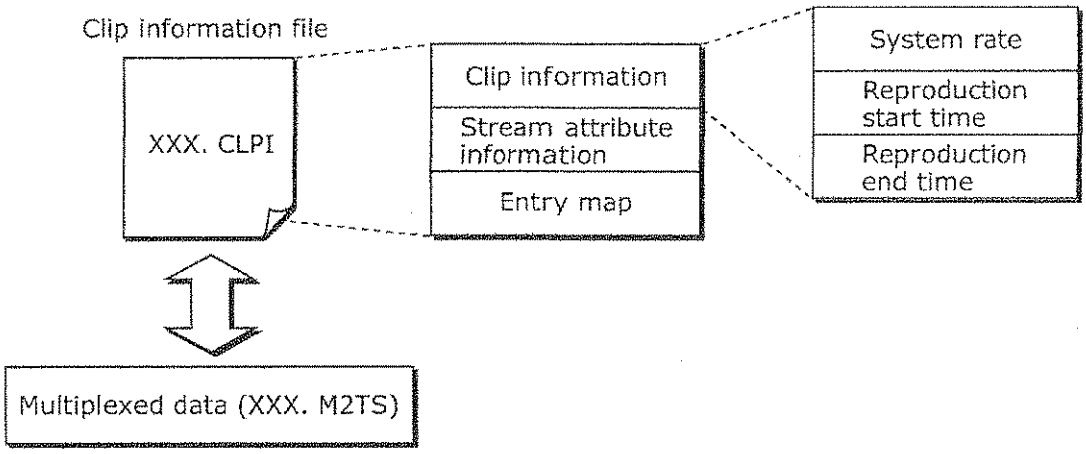

Clip information file
XXX. CLPI
Clip information
Stream attribute information
Entry map
System rate
Reproduction start time
Reproduction end time
Multiplexed data (XXX. M2TS)

FIG. 40

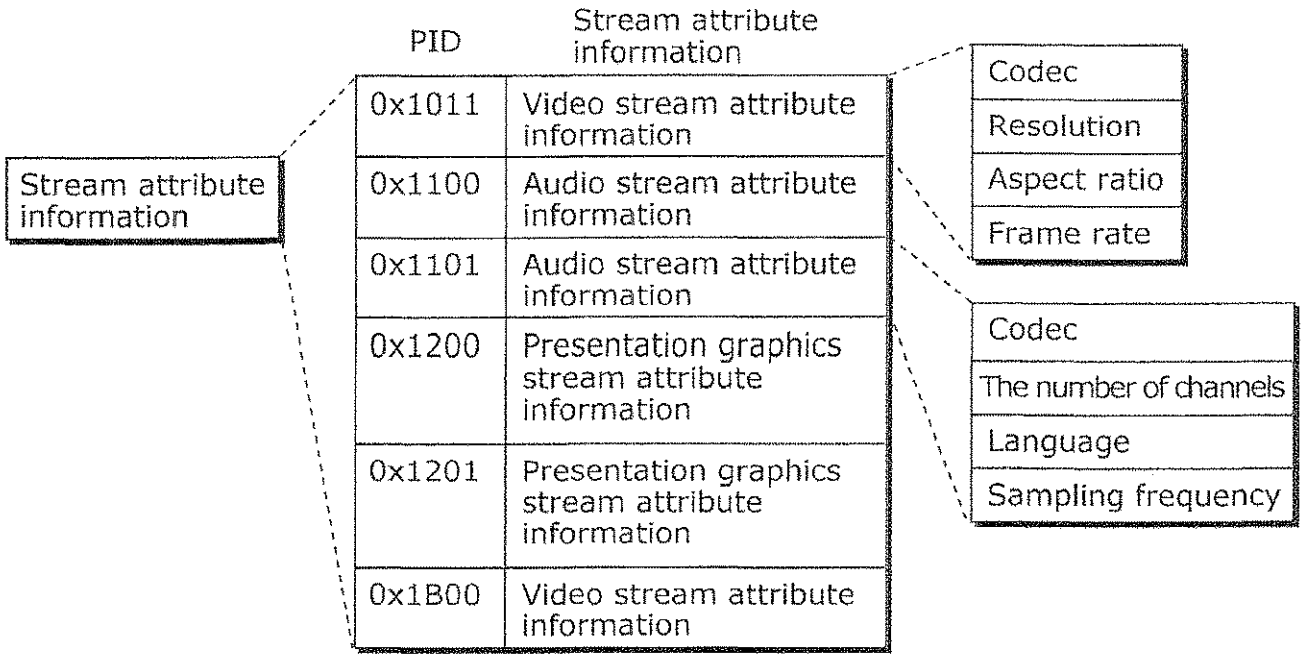

Stream attribute information
PID
Stream attribute information
0x1011
Video stream attribute information
0x1100
Audio stream attribute information
0x1101
Audio stream attribute information
0x1200
Presentation graphics stream attribute information
0x1201
Presentation graphics stream attribute information
0x1B00
Video stream attribute information
Codec
Resolution
Aspect ratio
Frame rate
Codec
The number of channels
Language
Sampling frequency

FIG. 41

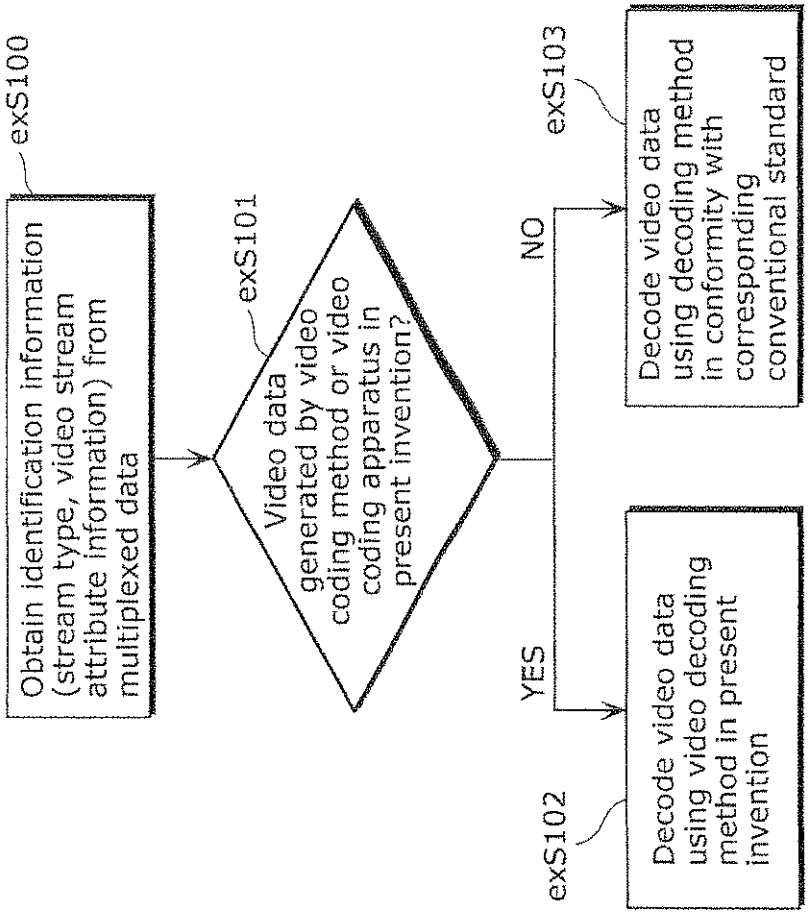

exS100
Obtain identification information (stream type, video stream attribute information) from multiplexed data
exS101
Video data generated by video coding method or video coding apparatus in present invention?
YES
NO
exS102
Decode video data using video decoding method in present invention
exS103
Decode video data using decoding method in conformity with corresponding conventional standard

FIG. 42

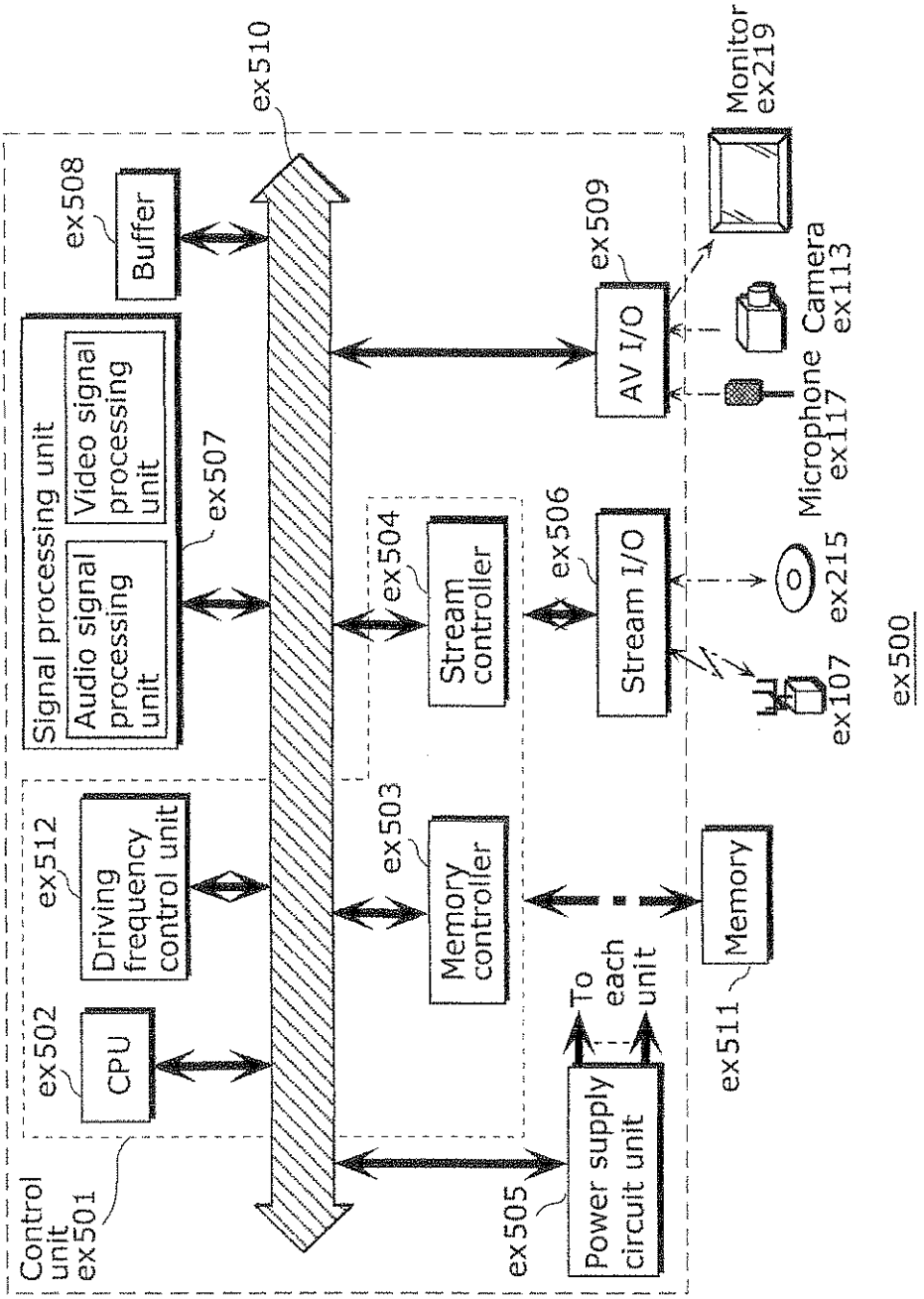
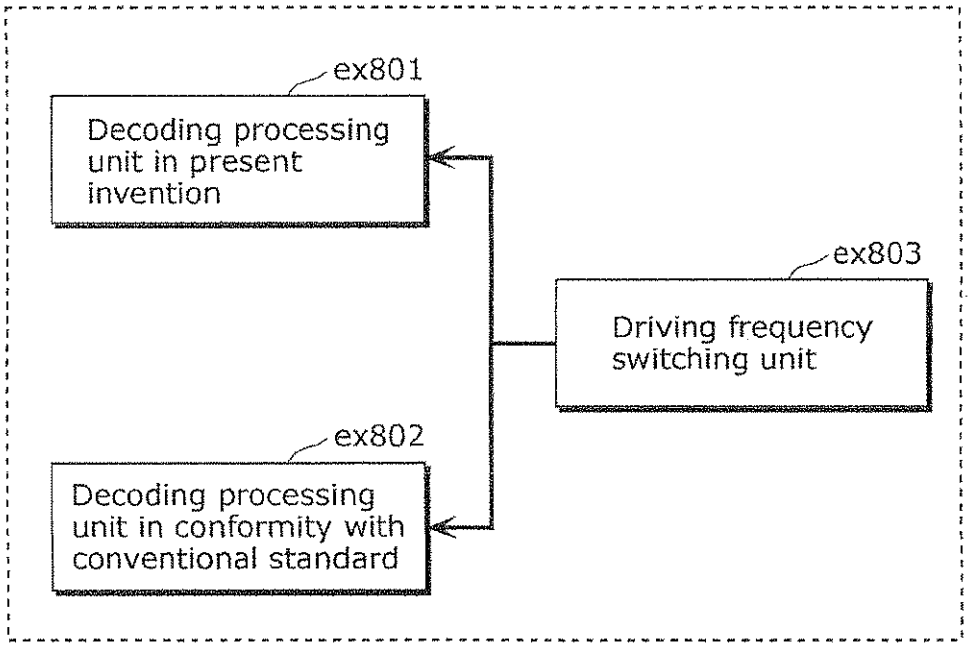

ex510
Monitor ex219
ex508
Buffer
ex509
AV I/O
Signal processing unit
Video signal processing unit
Audio signal processing unit
ex507
Camera ex113
Microphone ex117
ex504
Stream controller
ex506
Stream I/O
ex215
ex107
ex500
ex503
Memory controller
ex512
Driving frequency control unit
ex502
CPU
To each unit
Memory
ex511
Control unit ex501
ex505
Power supply circuit unit

FIG. 43


ex801
Decoding processing unit in present invention
ex803
Driving frequency switching unit
ex802
Decoding processing unit in conformity with conventional standard

ex800

FIG. 44

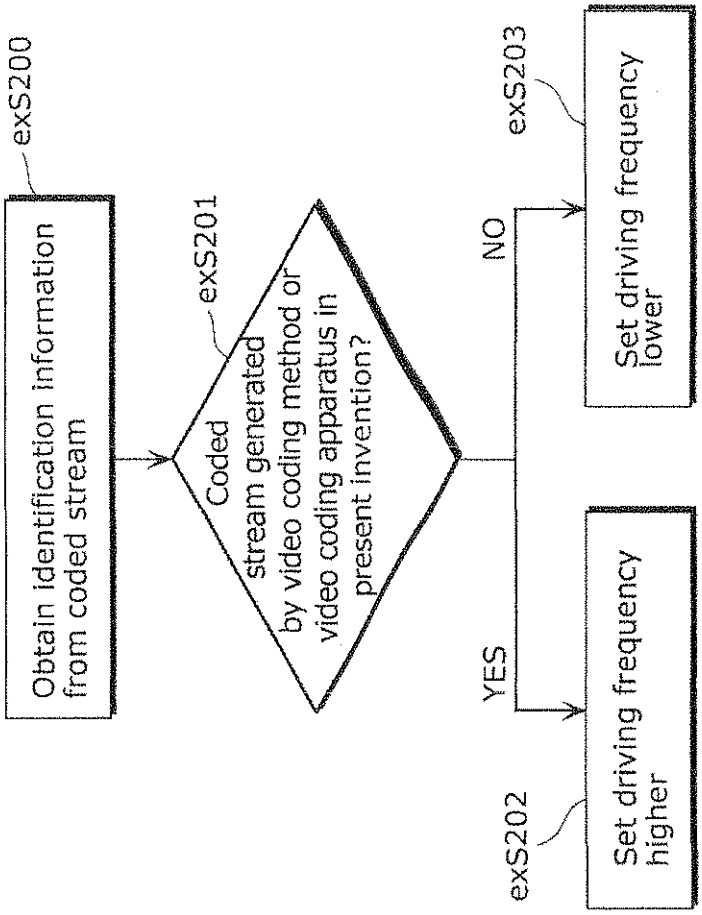
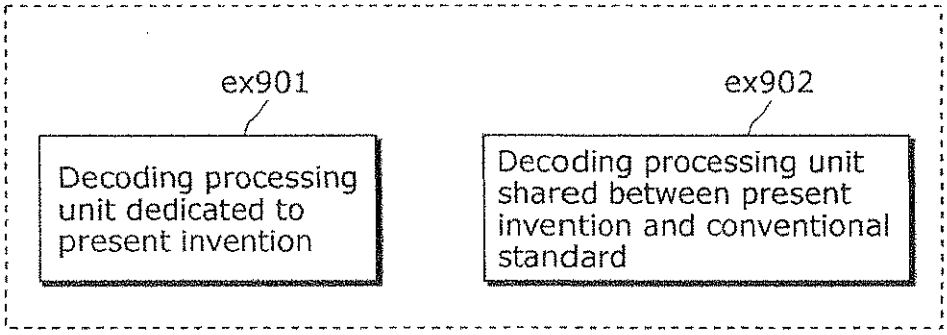

exS200
Obtain identification information from coded stream
exS201
Coded stream generated by video coding method or video coding apparatus in present invention?
YES
NO
exS202
Set driving frequency higher
exS203
Set driving frequency lower

FIG. 45

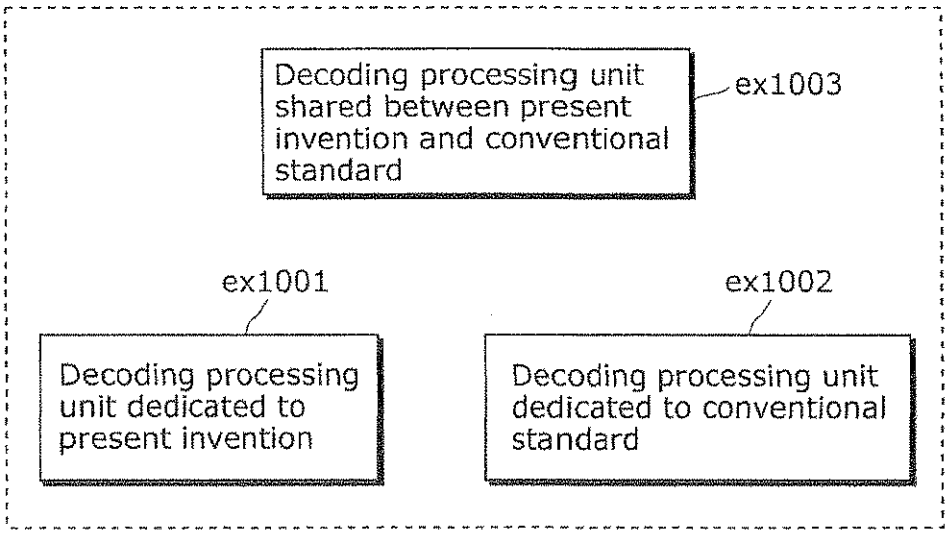
Corresponding standard	Driving frequency
MPEG-4 AVC	500 MHz
MPEG-2	350 MHz
⋮	⋮

FIG. 46A



ex900

FIG. 46B



ex1000