FIG. 1

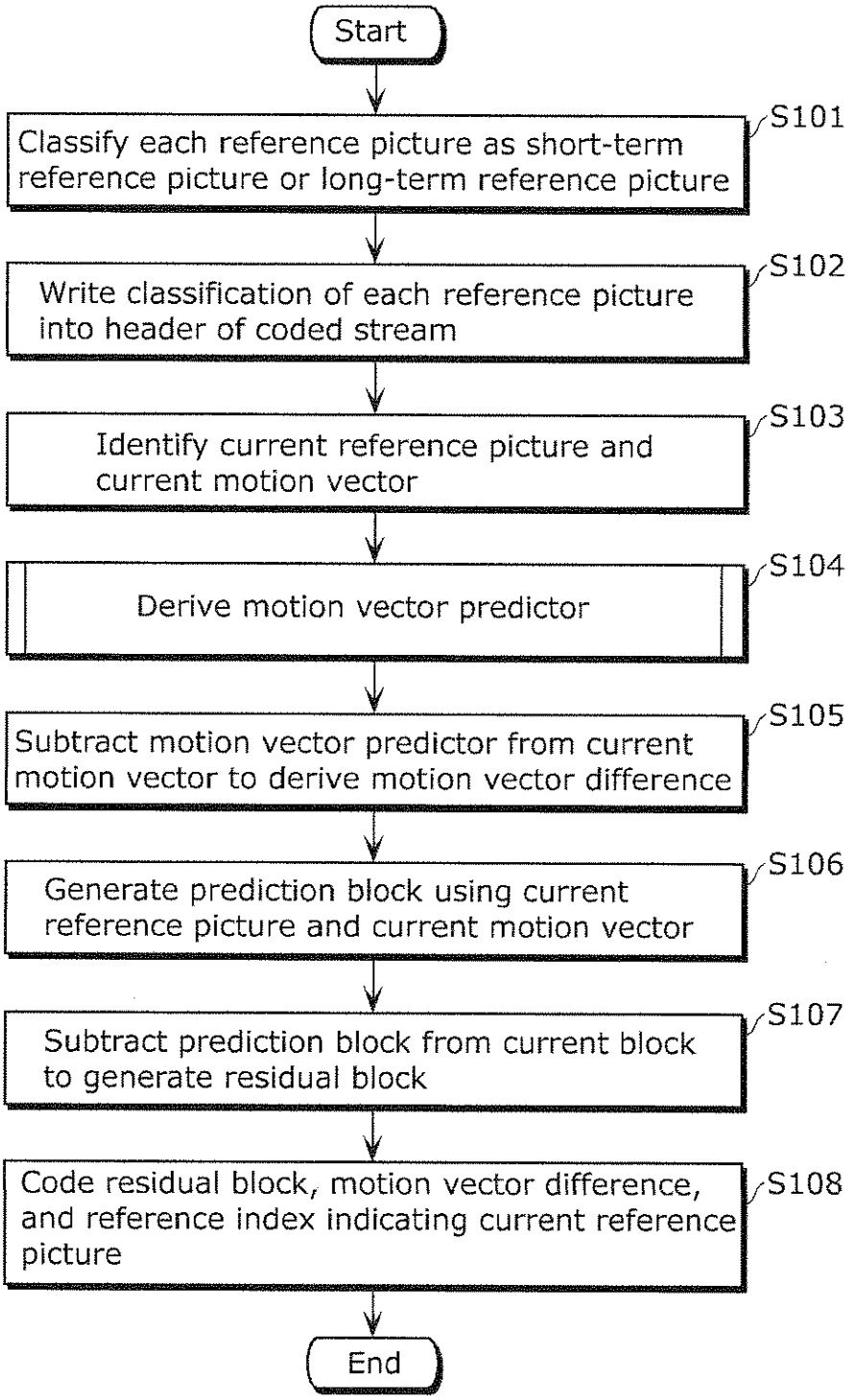

Start
Classify each reference picture as short-term reference picture or long-term reference picture
S101
Write classification of each reference picture into header of coded stream
S102
Identify current reference picture and current motion vector
S103
Derive motion vector predictor
S104
Subtract motion vector predictor from current motion vector to derive motion vector difference
S105
Generate prediction block using current reference picture and current motion vector
S106
Subtract prediction block from current block to generate residual block
S107
Code residual block, motion vector difference, and reference index indicating current reference picture
S108
End

FIG. 2

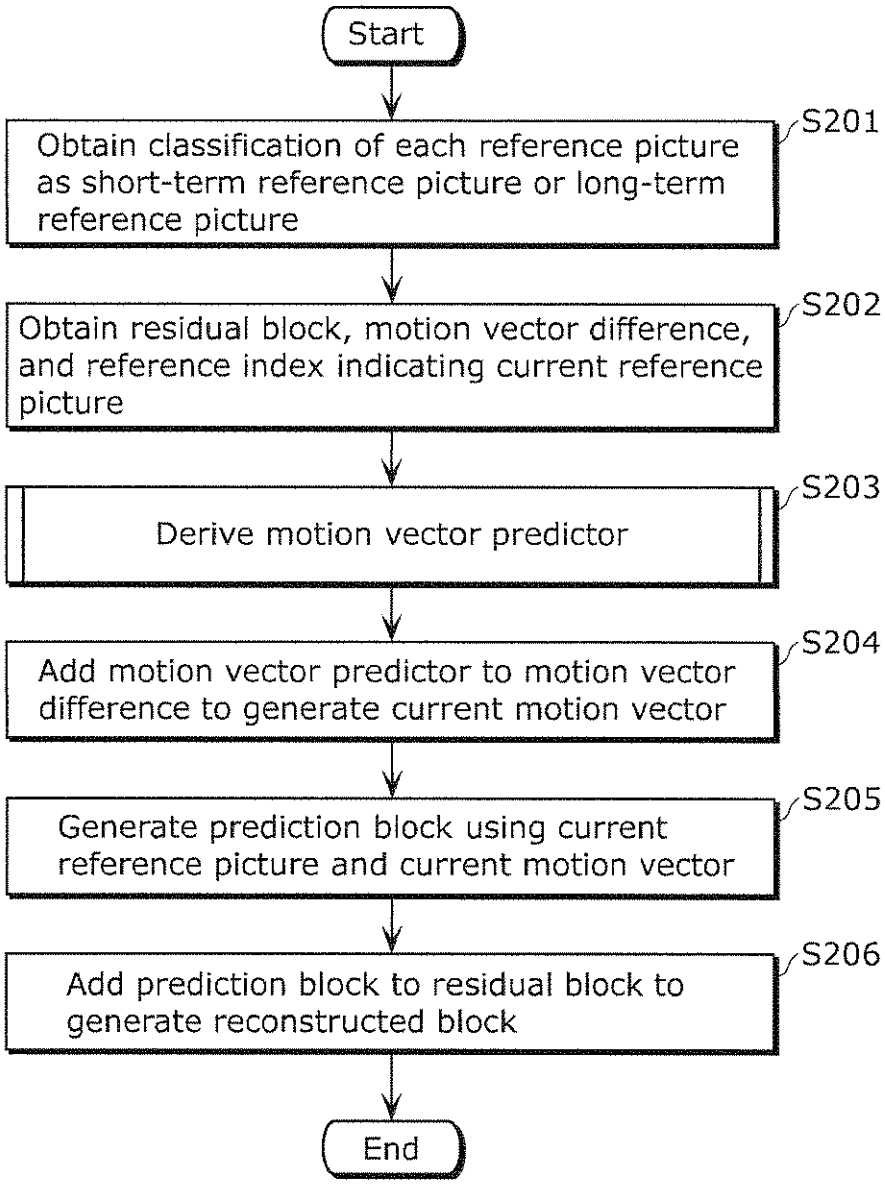

Start
Obtain classification of each reference picture as short-term reference picture or long-term reference picture
S201
Obtain residual block, motion vector difference, and reference index indicating current reference picture
S202
Derive motion vector predictor
S203
Add motion vector predictor to motion vector difference to generate current motion vector
S204
Generate prediction block using current reference picture and current motion vector
S205
Add prediction block to residual block to generate reconstructed block
S206
End

FIG. 3

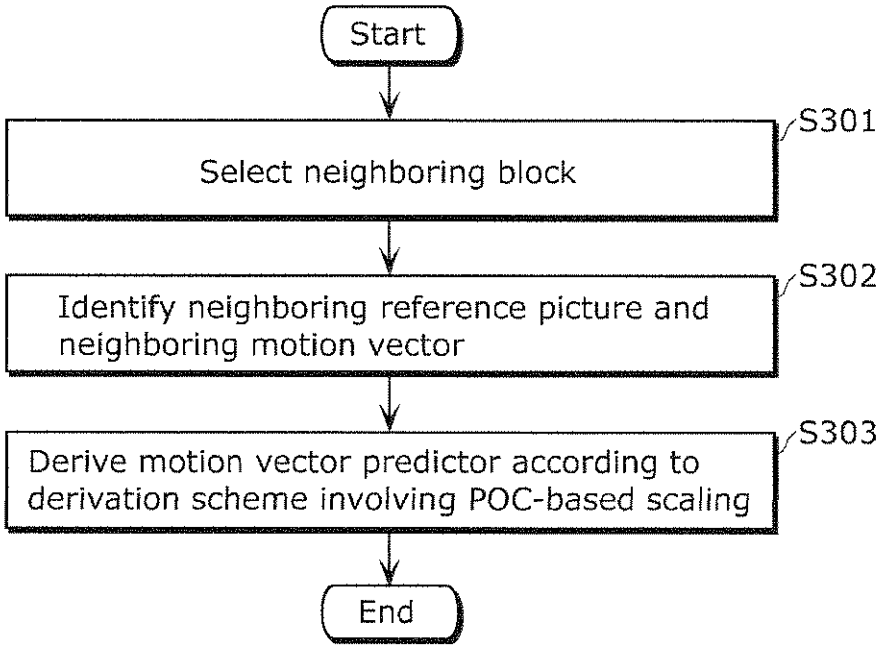

Start
Select neighboring block
S301
Identify neighboring reference picture and neighboring motion vector
S302
Derive motion vector predictor according to derivation scheme involving POC-based scaling
S303
End

FIG. 4

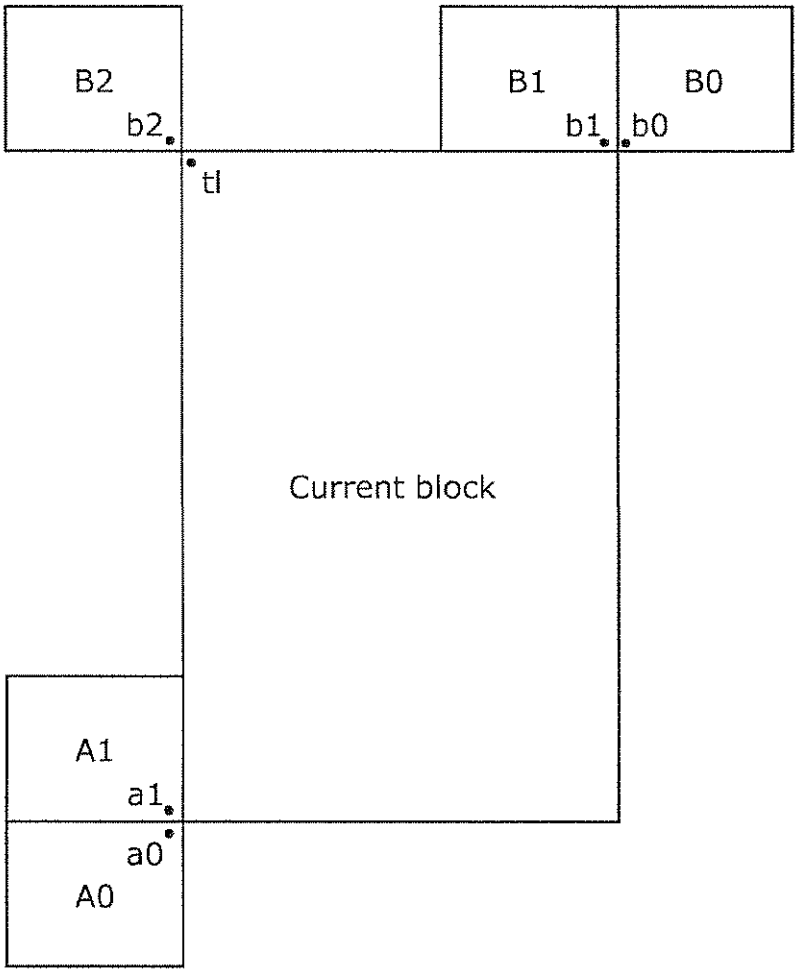


FIG. 5

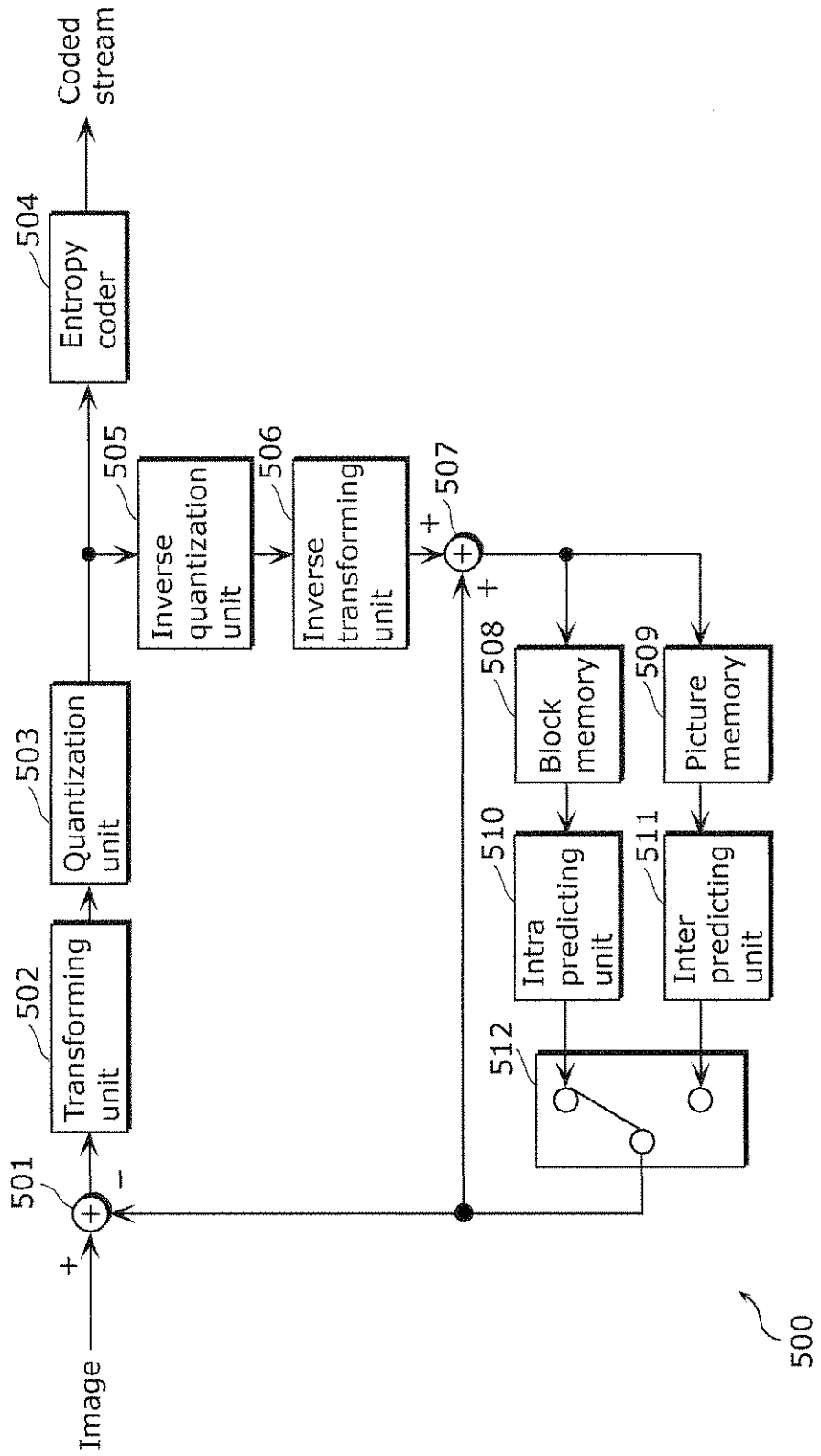

Image
+
501
−
Transforming unit
502
Quantization unit
503
Entropy coder
504
Coded stream
Inverse quantization unit
505
Inverse transforming unit
506
+
507
+
Block memory
508
Picture memory
509
Intra predicting unit
510
Inter predicting unit
511
512
500

FIG. 6

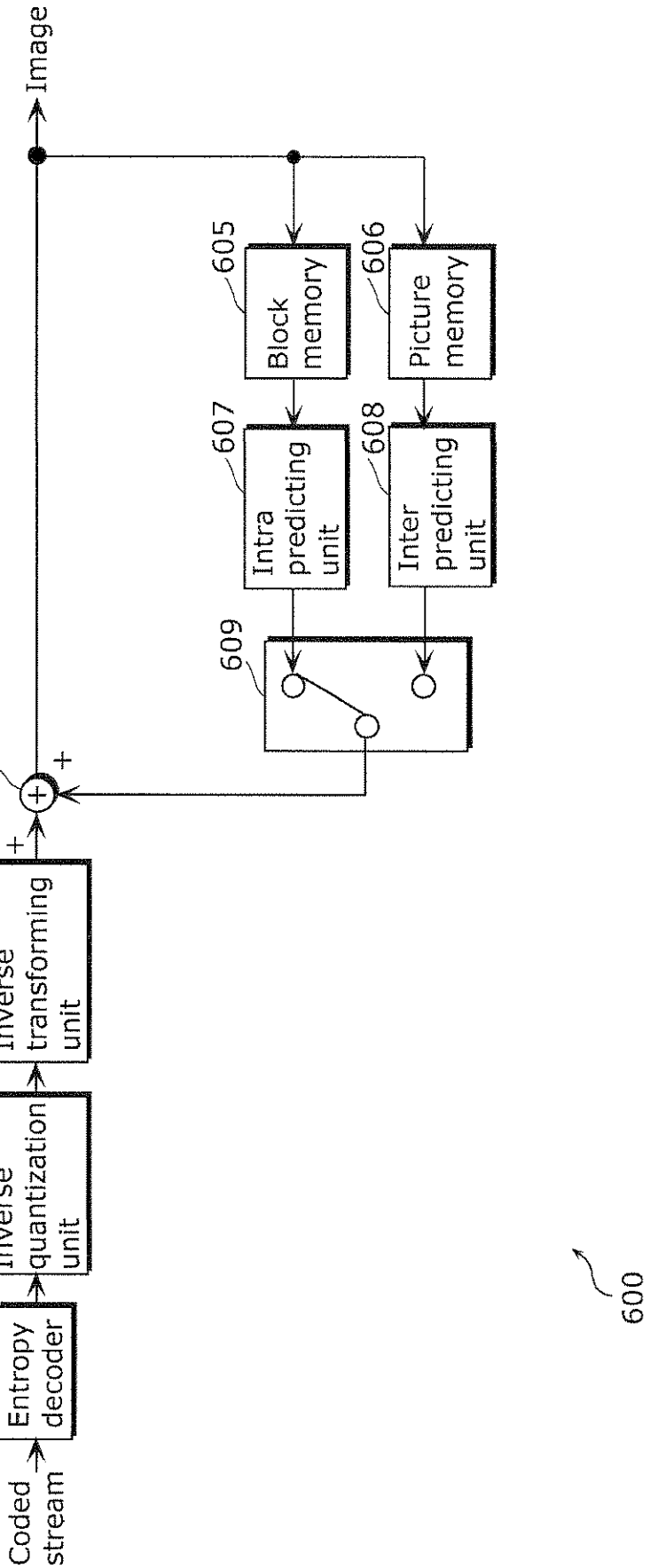

Coded stream
601
Entropy decoder
602
Inverse quantization unit
603
Inverse transforming unit
604
+
+
+
609
607
Intra predicting unit
608
Inter predicting unit
605
Block memory
606
Picture memory
Image
600

FIG. 7

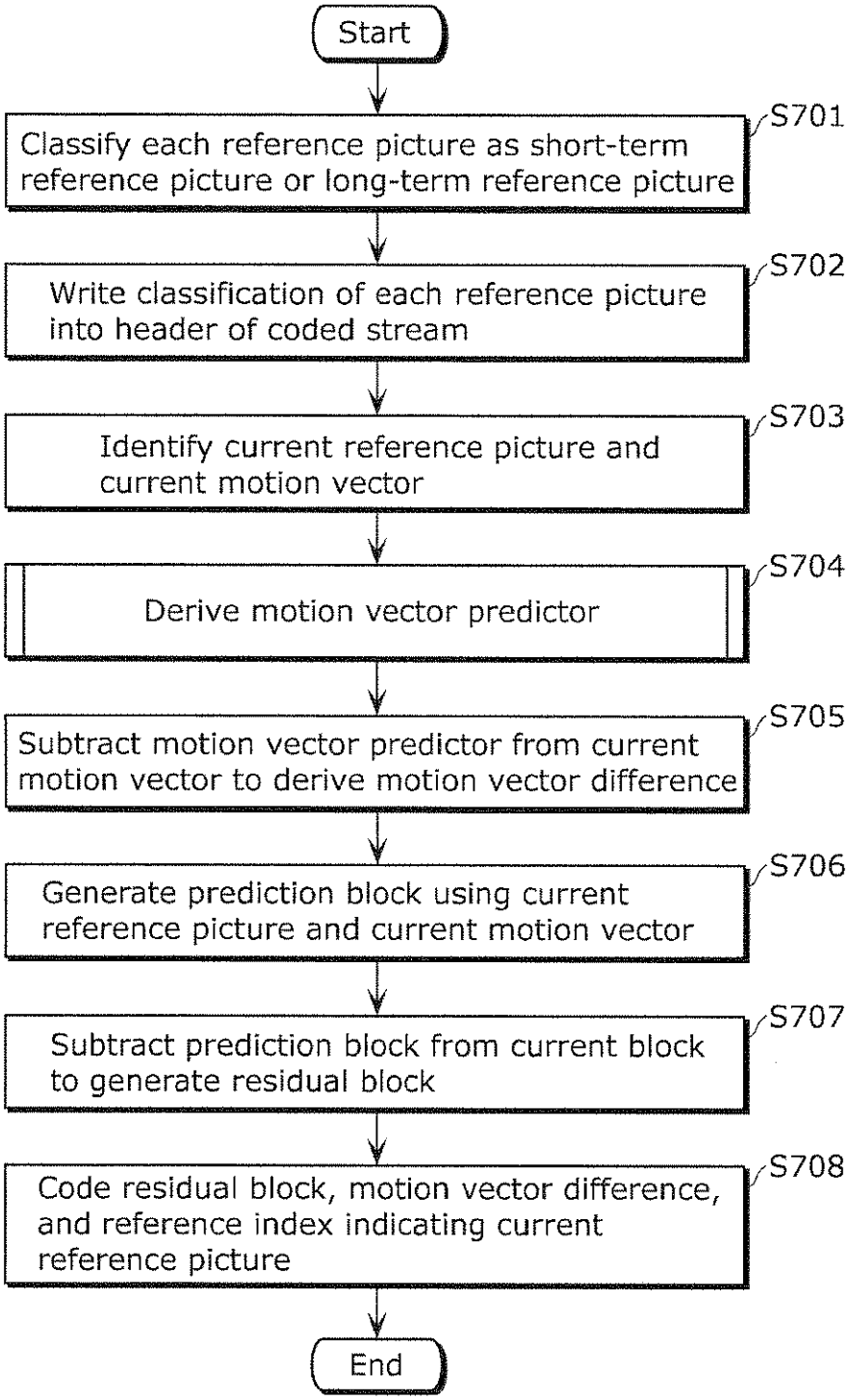

Start
Classify each reference picture as short-term reference picture or long-term reference picture
S701
Write classification of each reference picture into header of coded stream
S702
Identify current reference picture and current motion vector
S703
Derive motion vector predictor
S704
Subtract motion vector predictor from current motion vector to derive motion vector difference
S705
Generate prediction block using current reference picture and current motion vector
S706
Subtract prediction block from current block to generate residual block
S707
Code residual block, motion vector difference, and reference index indicating current reference picture
S708
End

FIG. 8

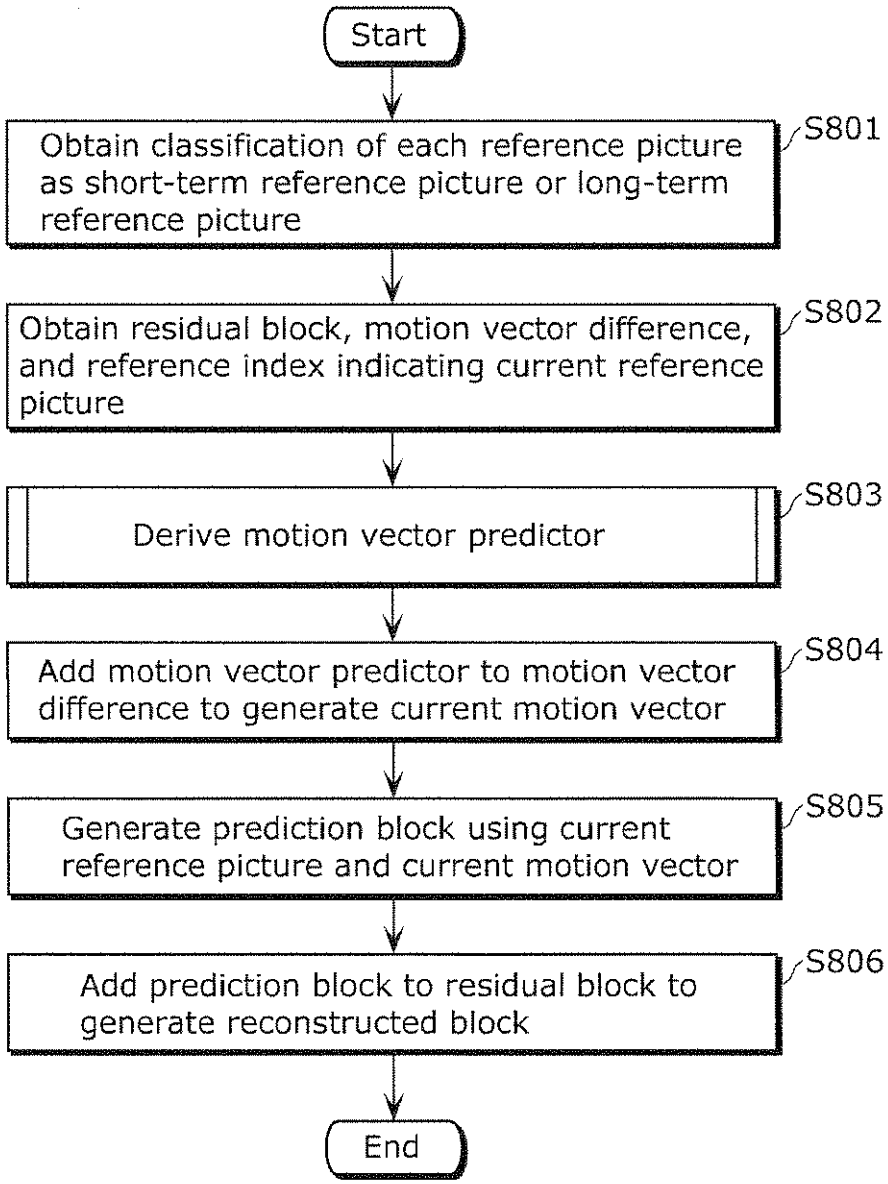

Start
Obtain classification of each reference picture as short-term reference picture or long-term reference picture
S801
Obtain residual block, motion vector difference, and reference index indicating current reference picture
S802
Derive motion vector predictor
S803
Add motion vector predictor to motion vector difference to generate current motion vector
S804
Generate prediction block using current reference picture and current motion vector
S805
Add prediction block to residual block to generate reconstructed block
S806
End

FIG. 9

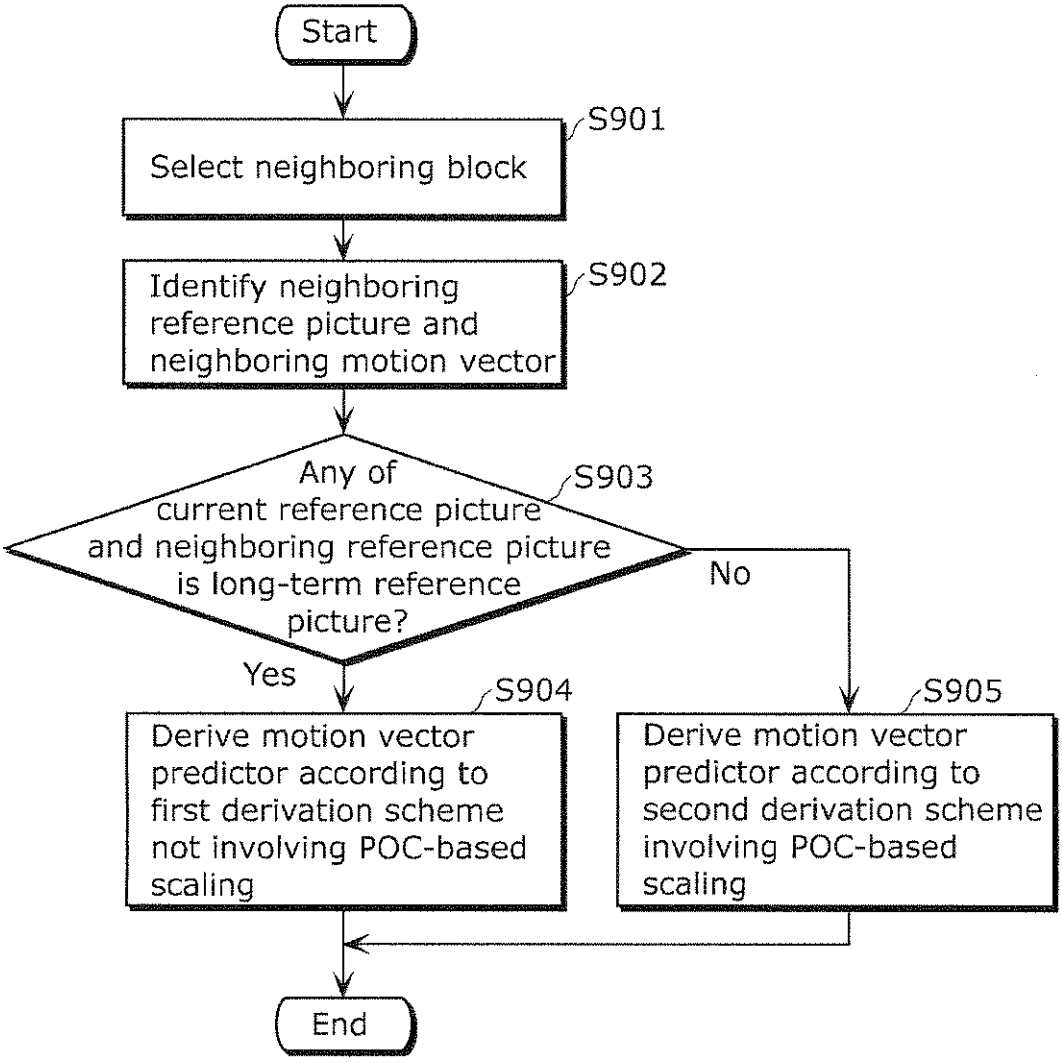

Start
S901
Select neighboring block
S902
Identify neighboring reference picture and neighboring motion vector
S903
Any of current reference picture and neighboring reference picture is long-term reference picture?
No
Yes
S904
Derive motion vector predictor according to first derivation scheme not involving POC-based scaling
S905
Derive motion vector predictor according to second derivation scheme involving POC-based scaling
End

FIG. 10

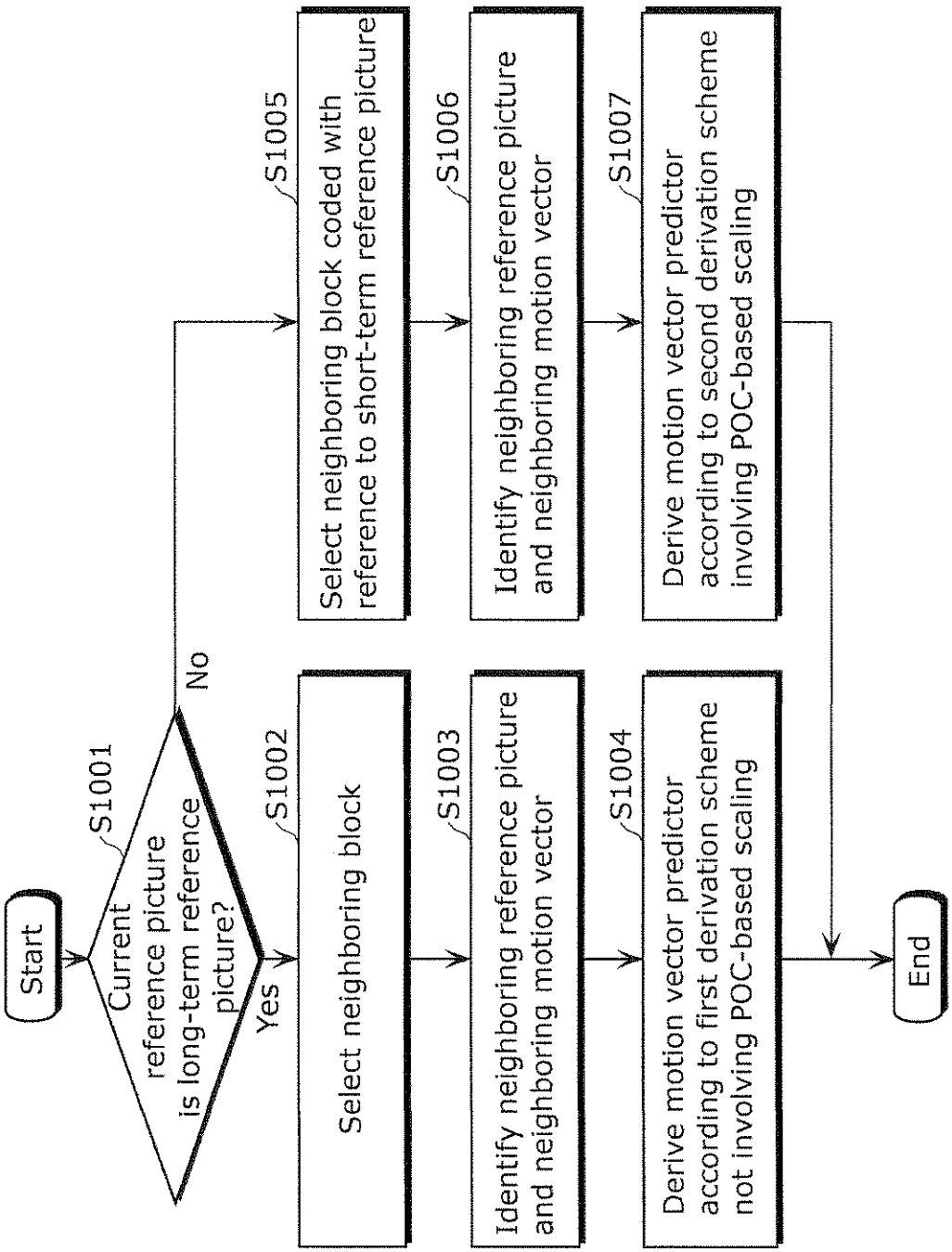

Start
S1001
Current reference picture is long-term reference picture?
Yes
No
S1002
Select neighboring block
S1003
Identify neighboring reference picture and neighboring motion vector
S1004
Derive motion vector predictor according to first derivation scheme not involving POC-based scaling
S1005
Select neighboring block coded with reference to short-term reference picture
S1006
Identify neighboring reference picture and neighboring motion vector
S1007
Derive motion vector predictor according to second derivation scheme involving POC-based scaling
End

FIG. 11

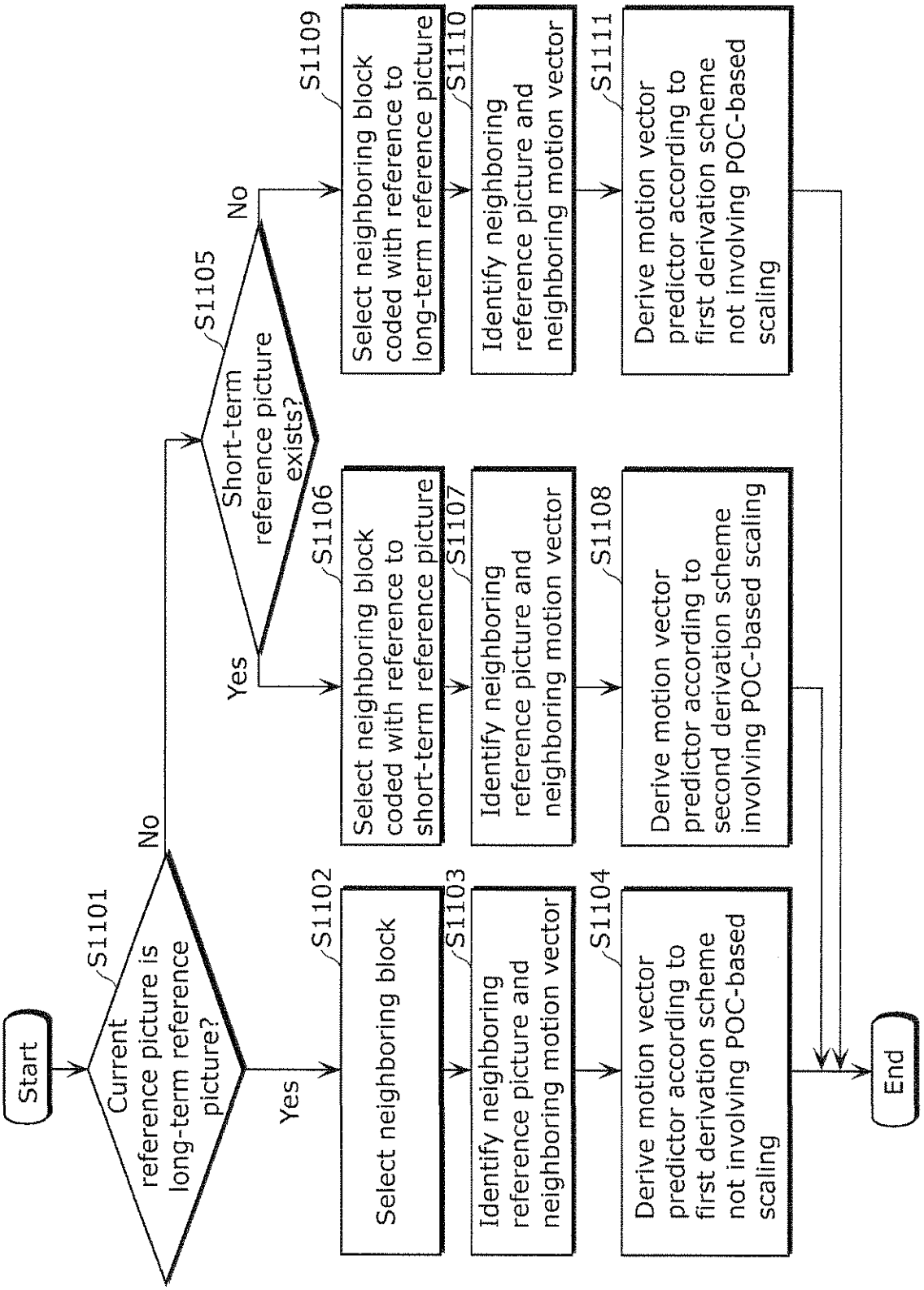

Start
S1101
Current reference picture is long-term reference picture?
Yes
No
S1102
Select neighboring block
S1103
Identify neighboring reference picture and neighboring motion vector
S1104
Derive motion vector predictor according to first derivation scheme not involving POC-based scaling
S1105
Short-term reference picture exists?
Yes
No
S1106
Select neighboring block coded with reference to short-term reference picture
S1107
Identify neighboring reference picture and neighboring motion vector
S1108
Derive motion vector predictor according to second derivation scheme involving POC-based scaling
S1109
Select neighboring block coded with reference to long-term reference picture
S1110
Identify neighboring reference picture and neighboring motion vector
S1111
Derive motion vector predictor according to first derivation scheme not involving POC-based scaling
End

FIG. 12A

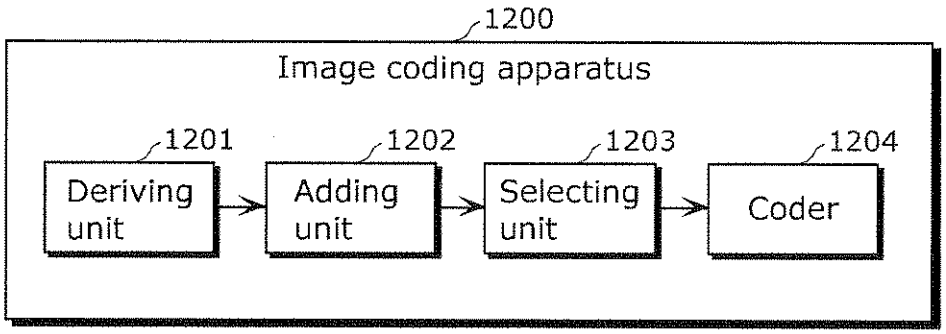


FIG. 12B

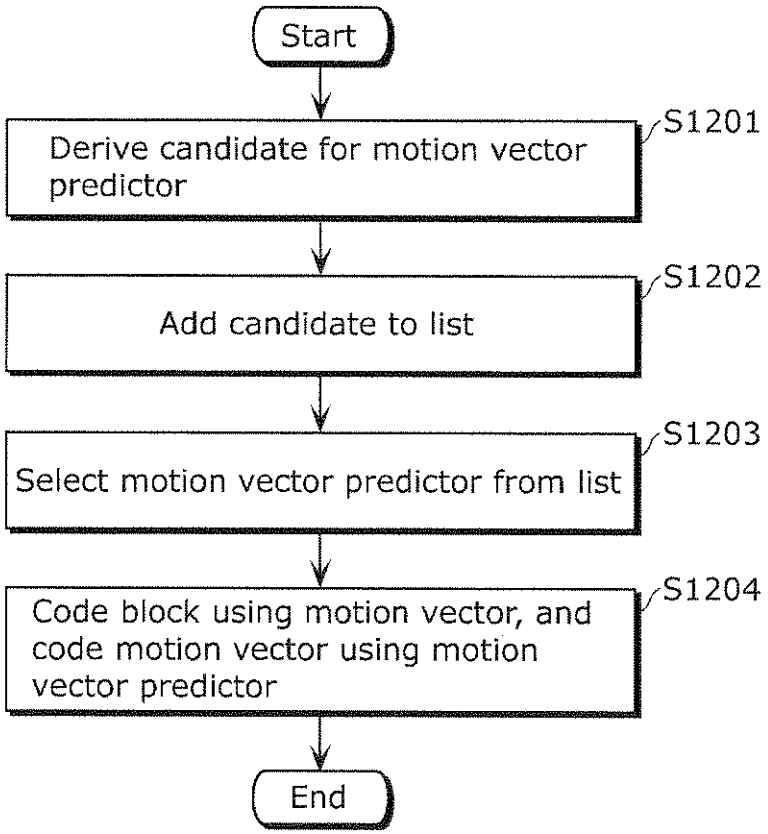


FIG. 13A

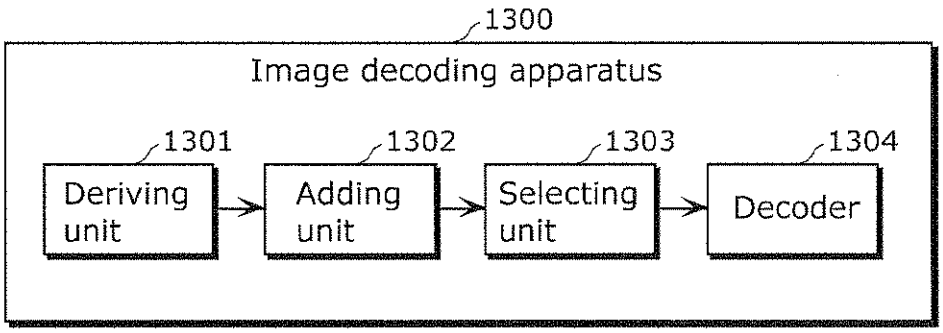


FIG. 13B

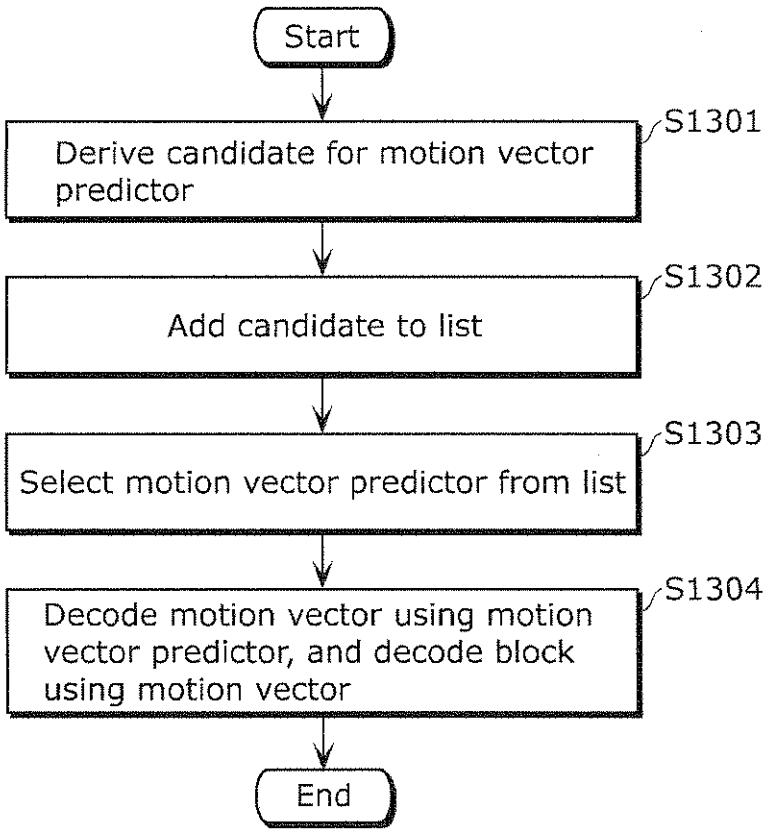


FIG. 14A

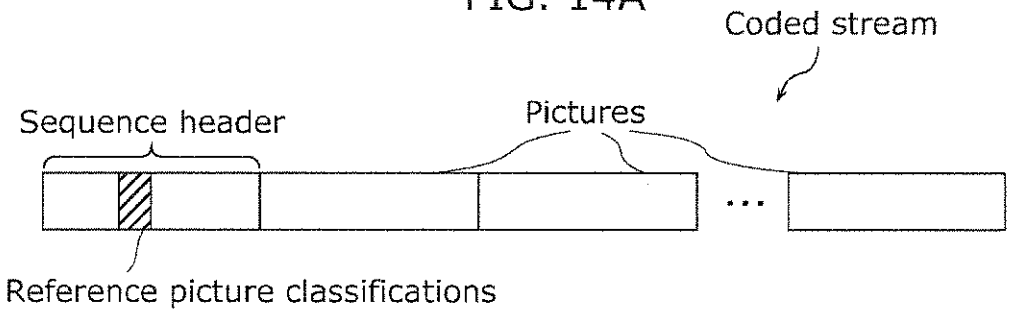


FIG. 14B

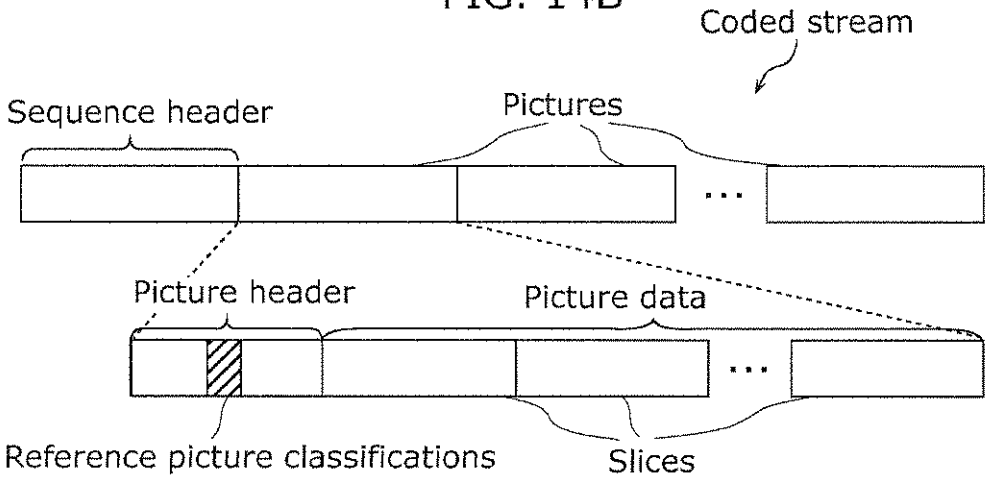


FIG. 14C

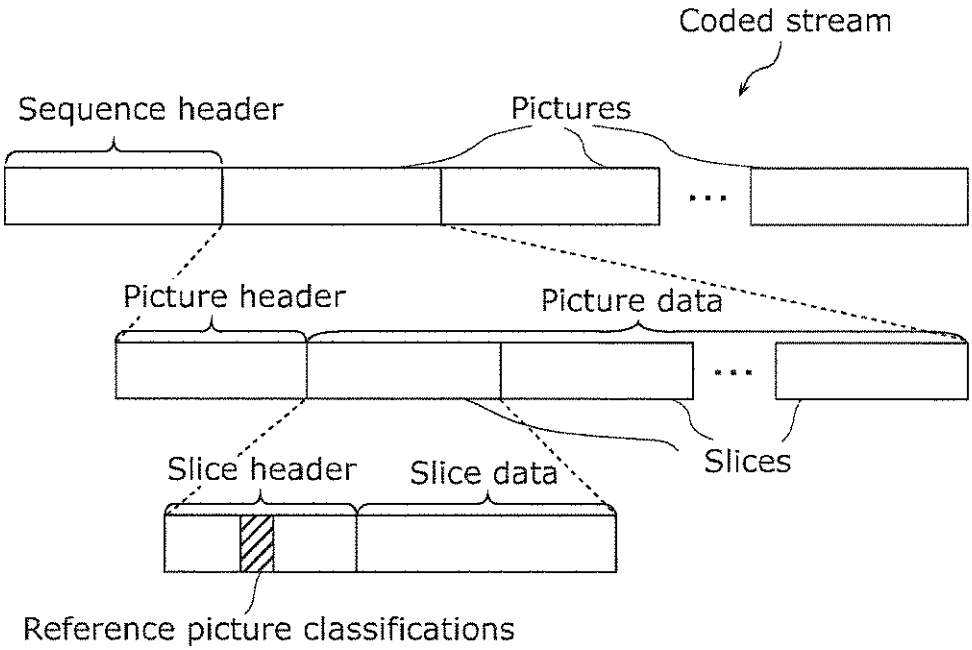


FIG. 15

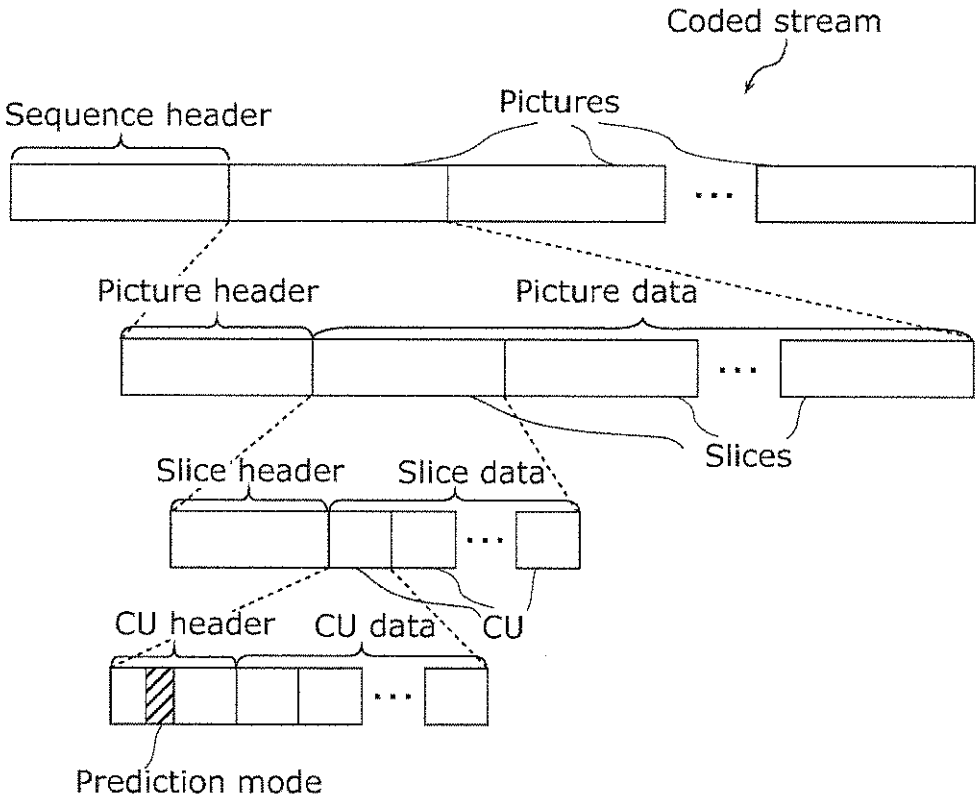

Coded stream
Sequence header
Pictures
Picture header
Picture data
Slices
Slice header
Slice data
CU header
CU data
CU
Prediction mode

FIG. 16

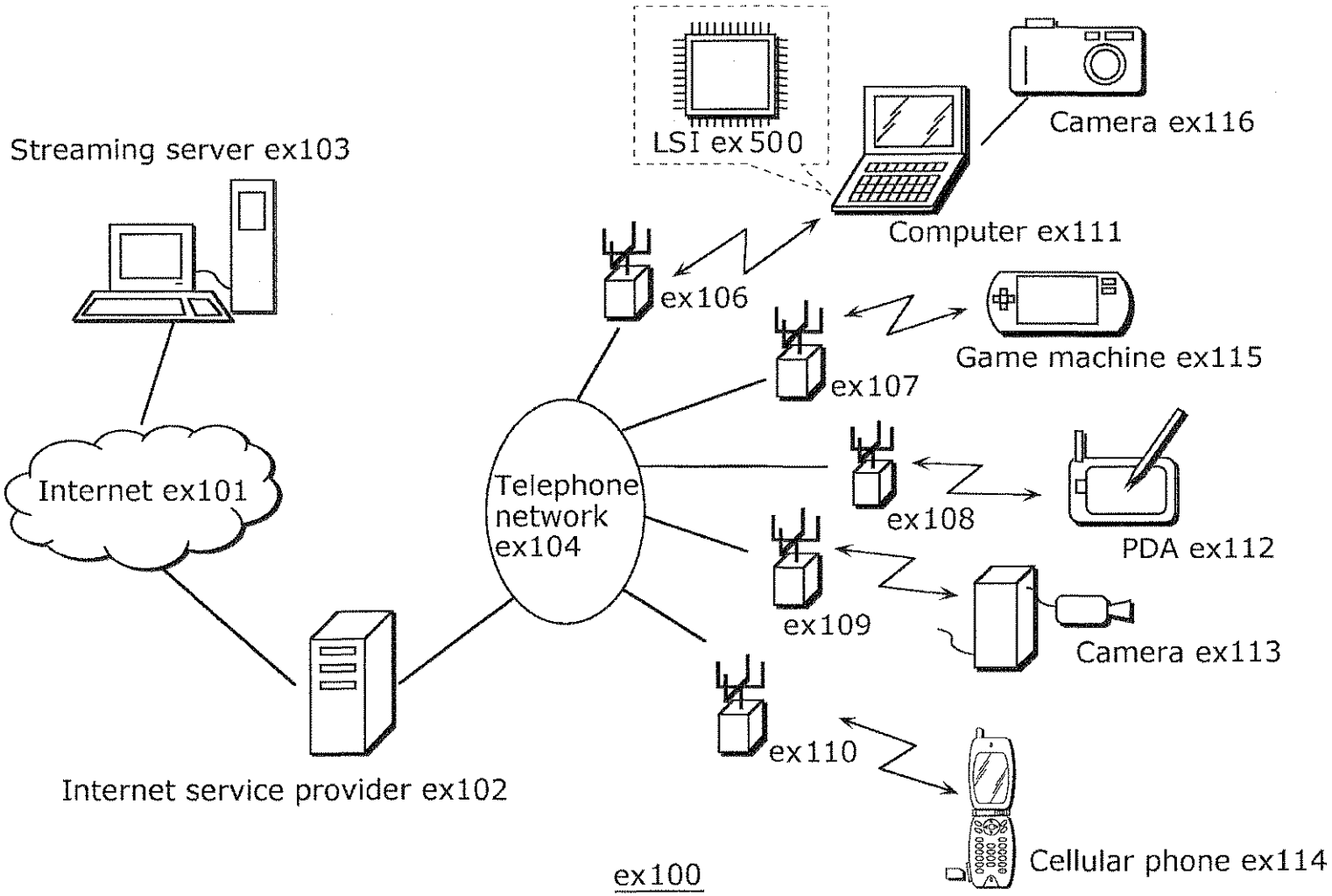

LSI ex500
Camera ex116
Streaming server ex103
Computer ex111
ex106
Game machine ex115
ex107
Internet ex101
Telephone network ex104
ex108
PDA ex112
ex109
Camera ex113
ex110
Internet service provider ex102
Cellular phone ex114
ex100

FIG. 17

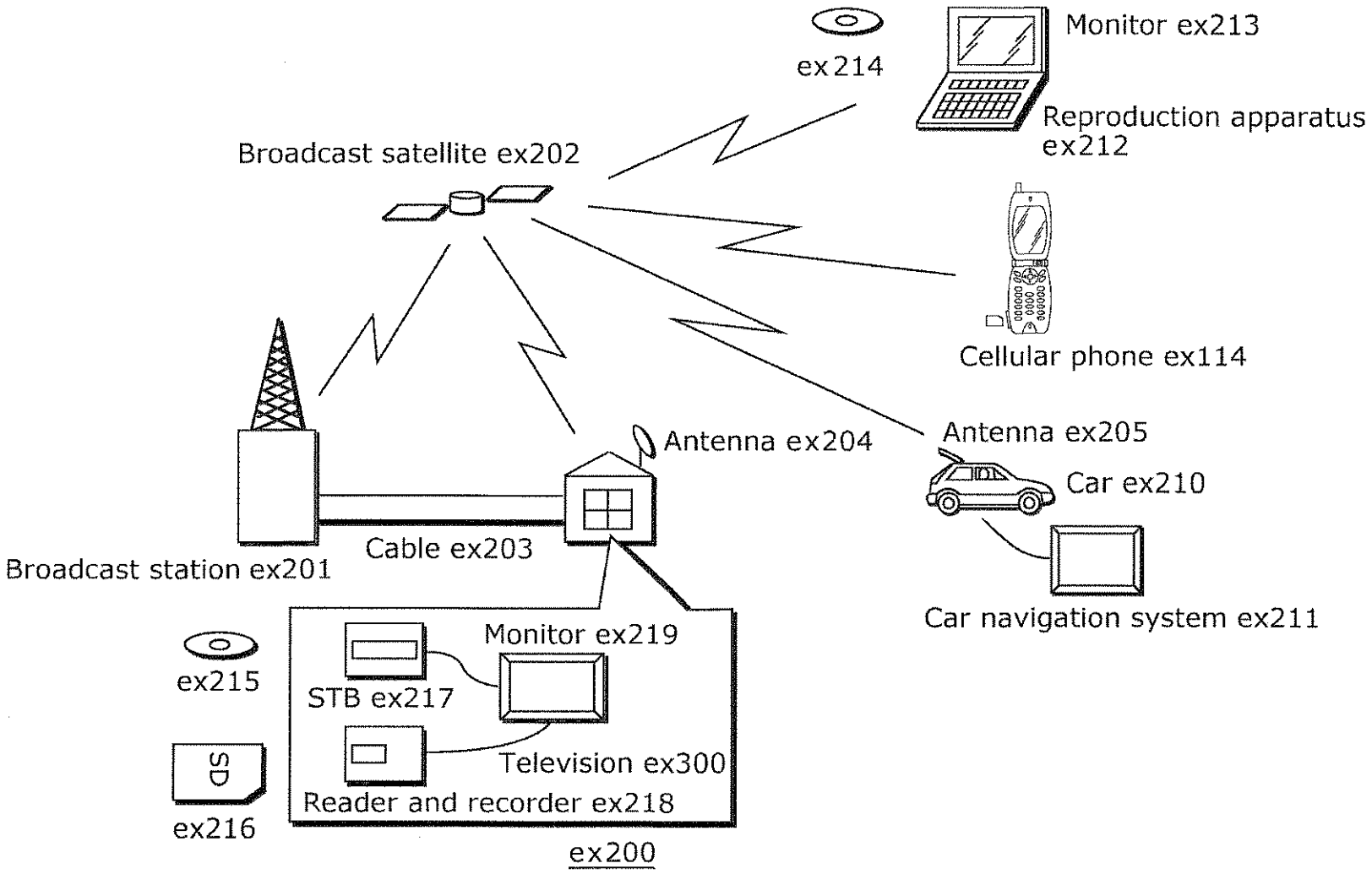

ex214
Monitor ex213
Reproduction apparatus ex212
Broadcast satellite ex202
Cellular phone ex114
Antenna ex204
Antenna ex205
Car ex210
Cable ex203
Broadcast station ex201
Car navigation system ex211
Monitor ex219
ex215
STB ex217
SD
Television ex300
Reader and recorder ex218
ex216
ex200

FIG. 18

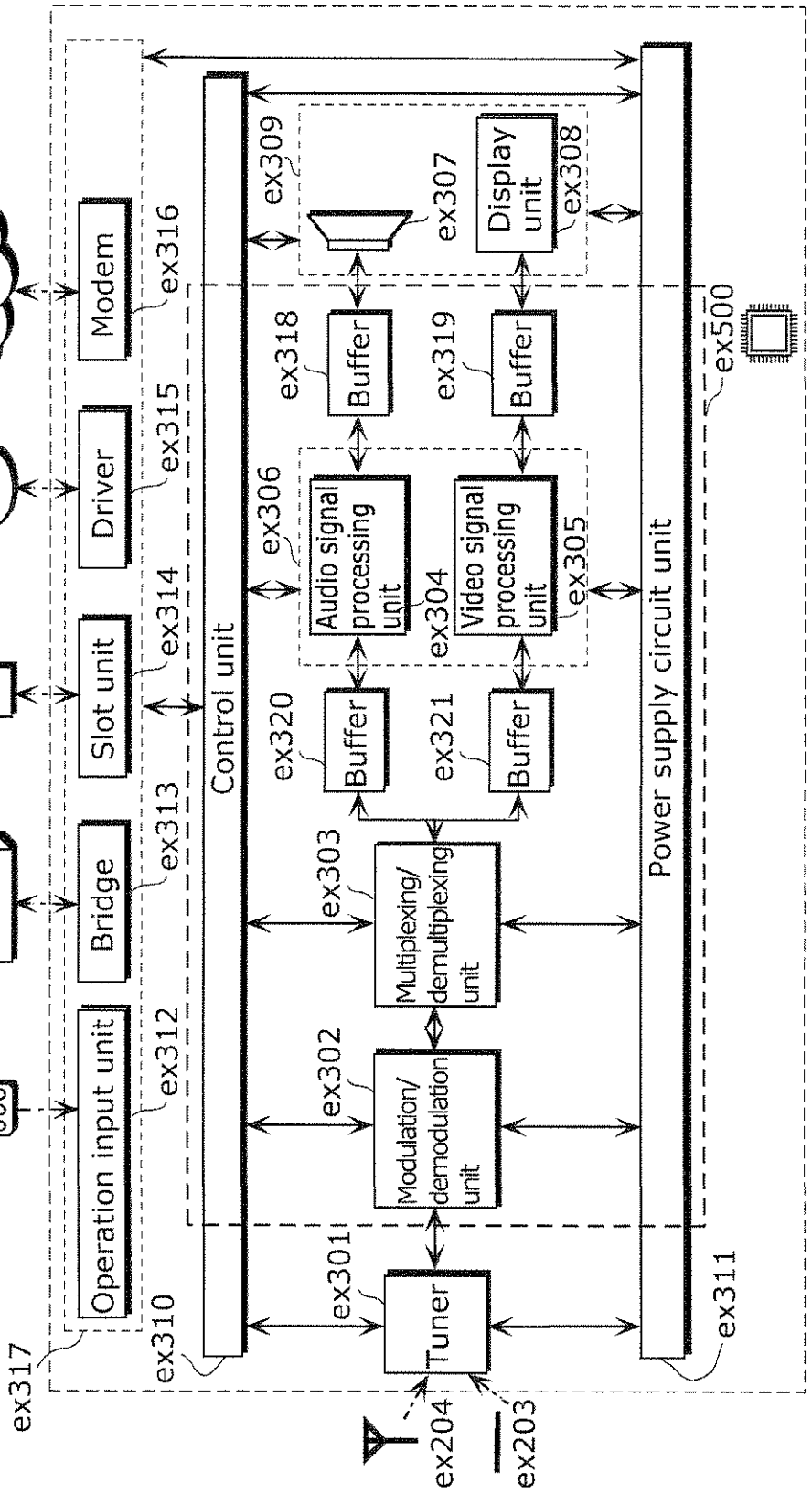

ex104
Telephone network
ex215
ex216
SD
ex218
ex220
ex317
Operation input unit
ex312
Bridge
ex313
Slot unit
ex314
Driver
ex315
Modem
ex316
Control unit
ex310
ex309
ex307
Display unit
ex308
ex318
Buffer
ex319
Buffer
ex306
Audio signal processing unit
ex304
Video signal processing unit
ex305
ex320
Buffer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

FIG. 19

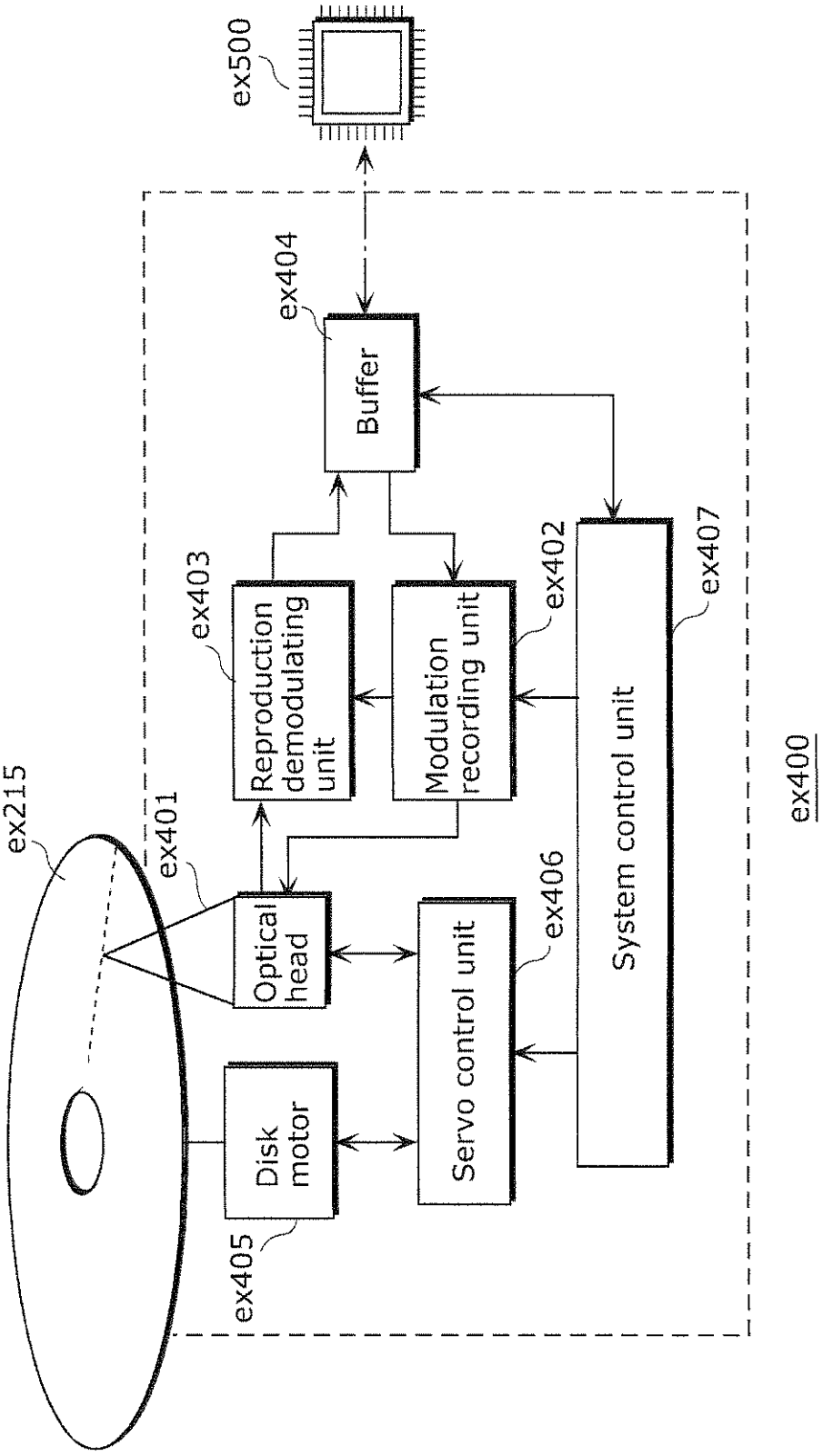

ex500
ex404
Buffer
ex403
Reproduction demodulating unit
ex402
Modulation recording unit
ex407
System control unit
ex400
ex215
ex401
Optical head
ex406
Servo control unit
Disk motor
ex405

FIG. 20

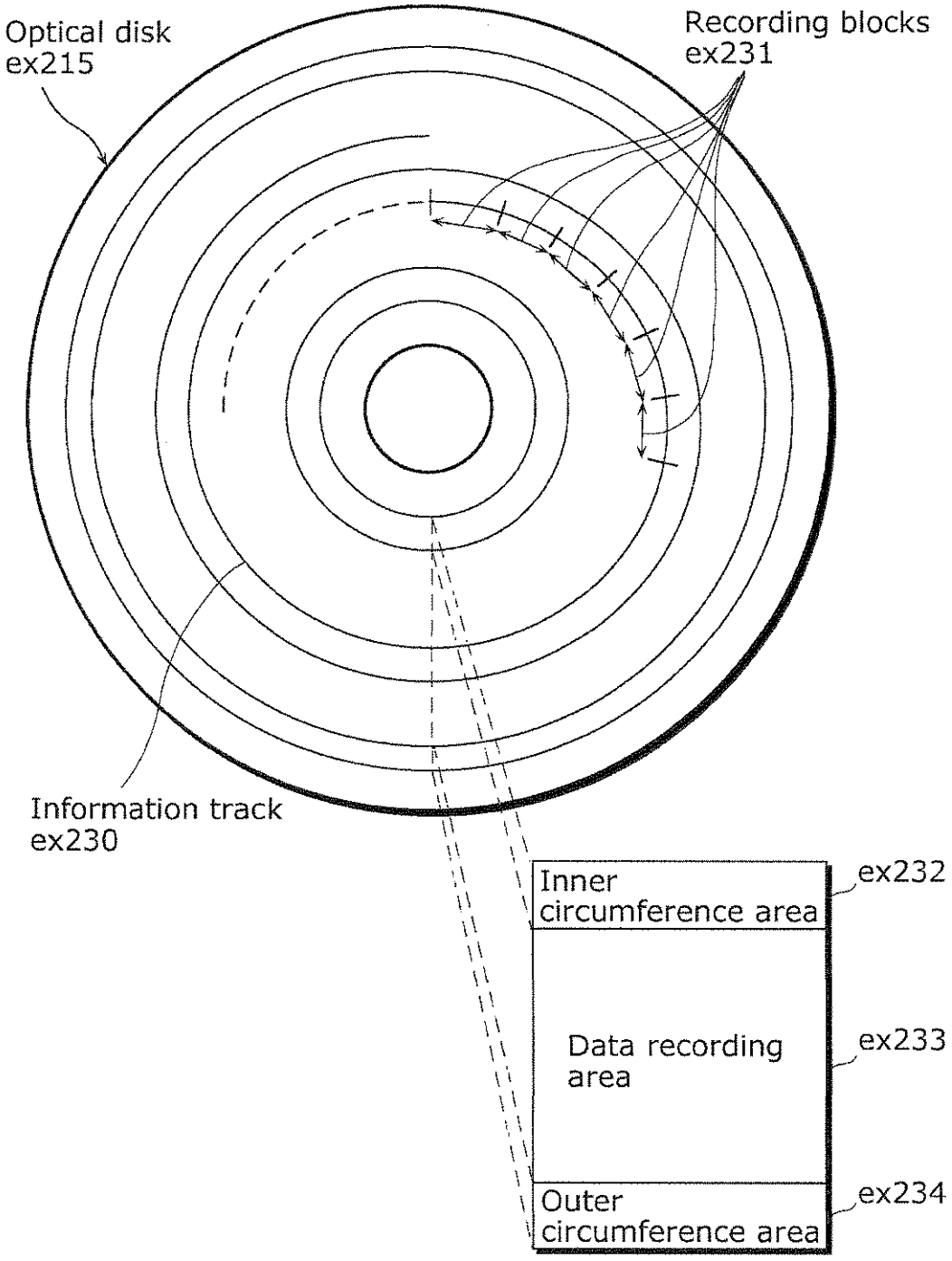

Optical disk
ex215
Recording blocks
ex231
Information track
ex230
Inner
circumference area
ex232
Data recording
area
ex233
Outer
circumference area
ex234

FIG. 21A

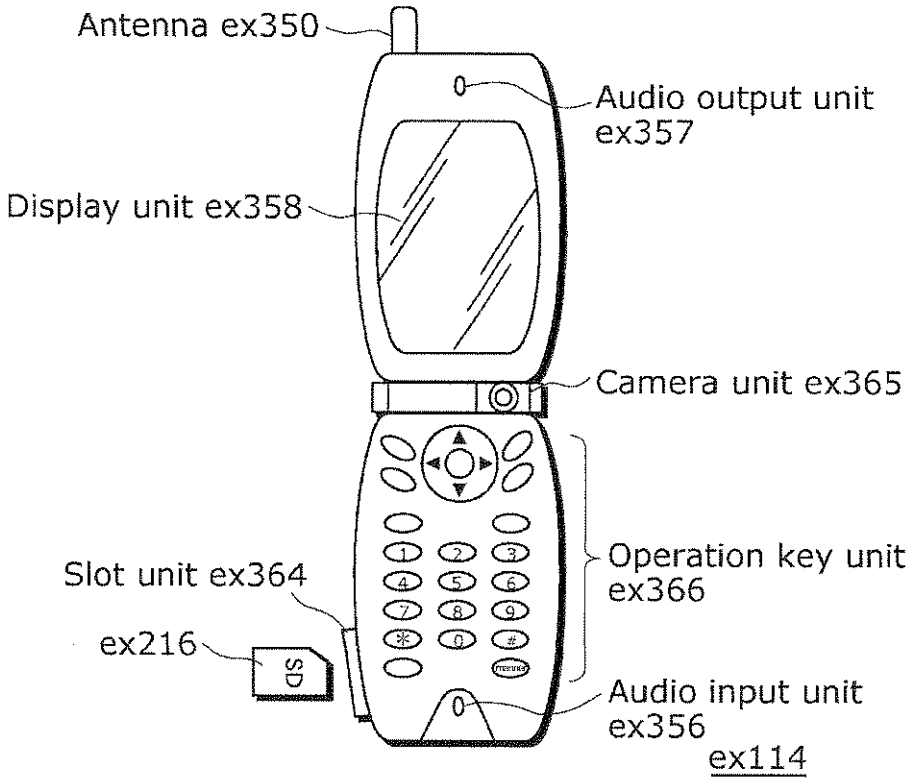


FIG. 21B

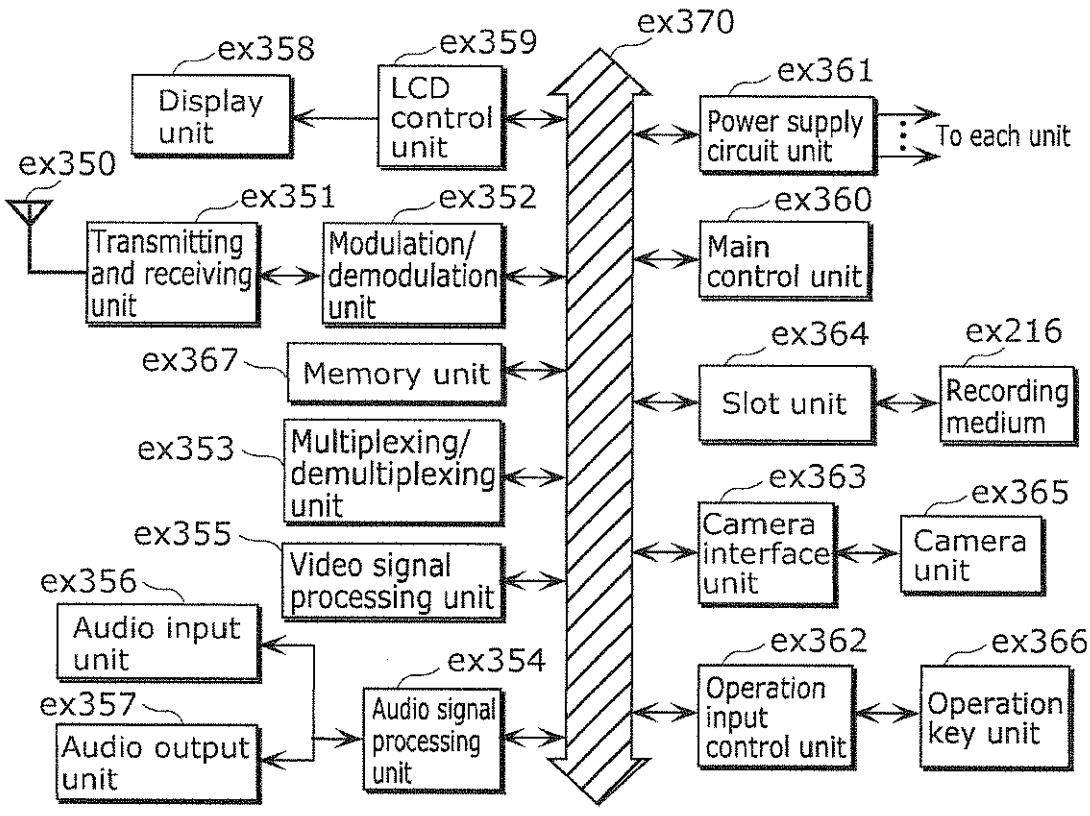


FIG. 22

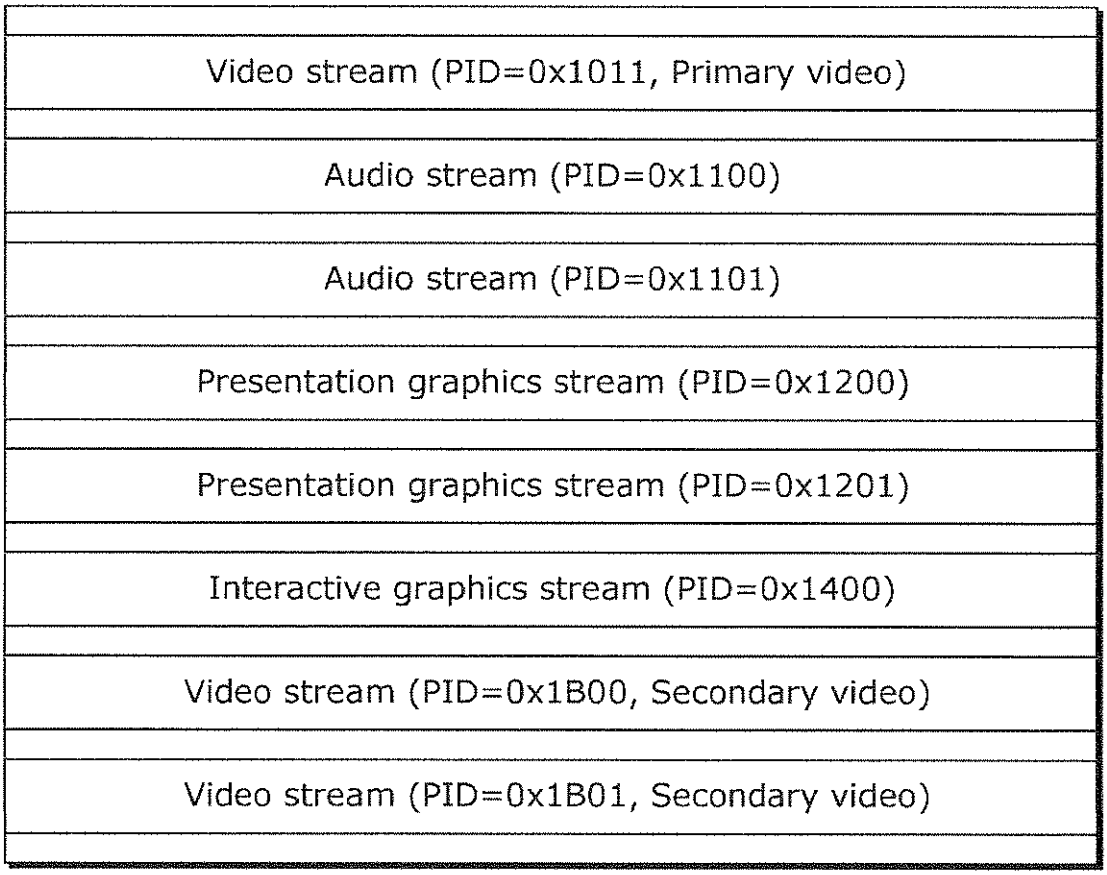

Video stream (PID=0x1011, Primary video)
Audio stream (PID=0x1100)
Audio stream (PID=0x1101)
Presentation graphics stream (PID=0x1200)
Presentation graphics stream (PID=0x1201)
Interactive graphics stream (PID=0x1400)
Video stream (PID=0x1B00, Secondary video)
Video stream (PID=0x1B01, Secondary video)

FIG. 23

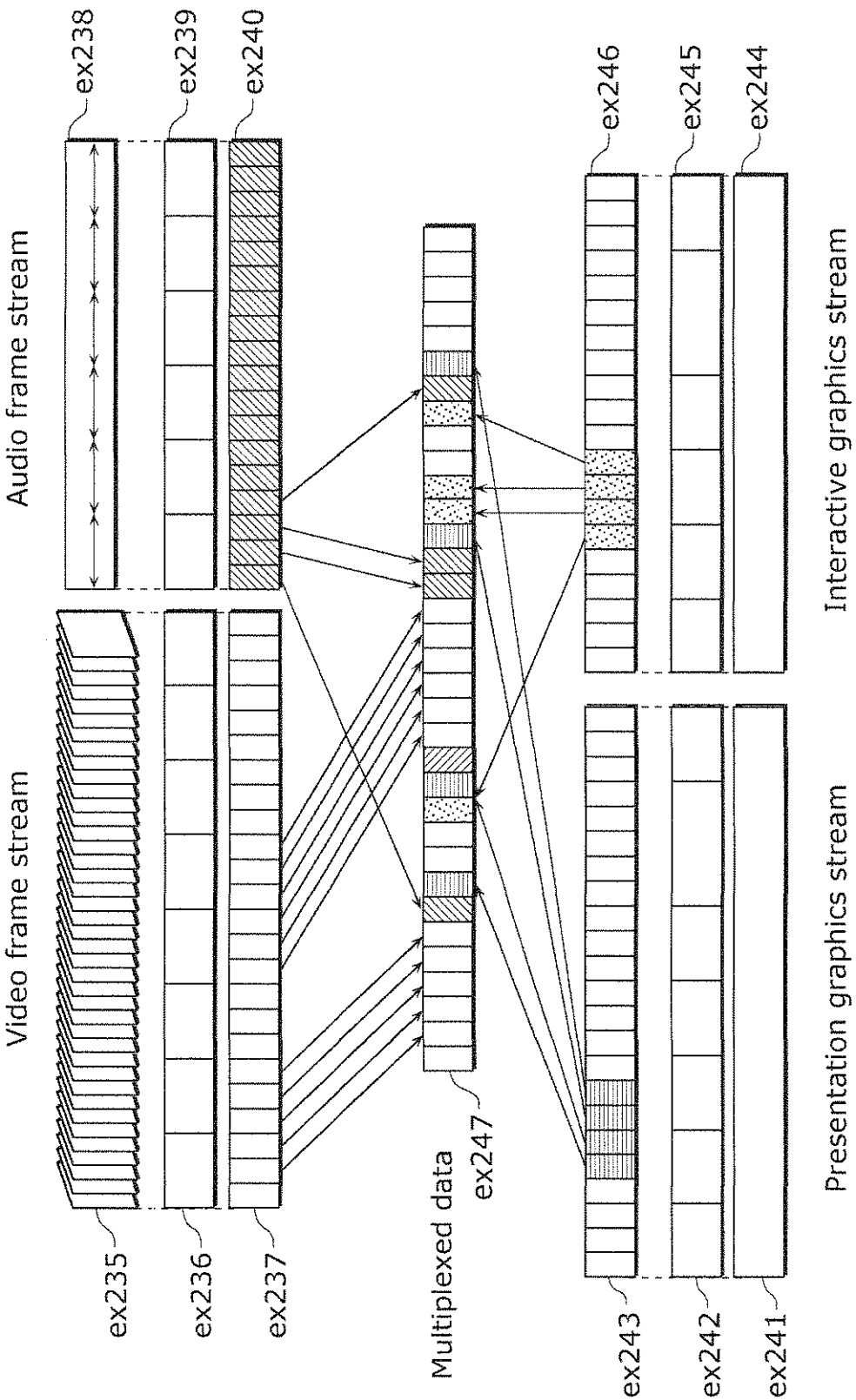

Video frame stream
Audio frame stream
Presentation graphics stream
Interactive graphics stream
Multiplexed data
ex235
ex236
ex237
ex238
ex239
ex240
ex241
ex242
ex243
ex244
ex245
ex246
ex247

FIG. 24

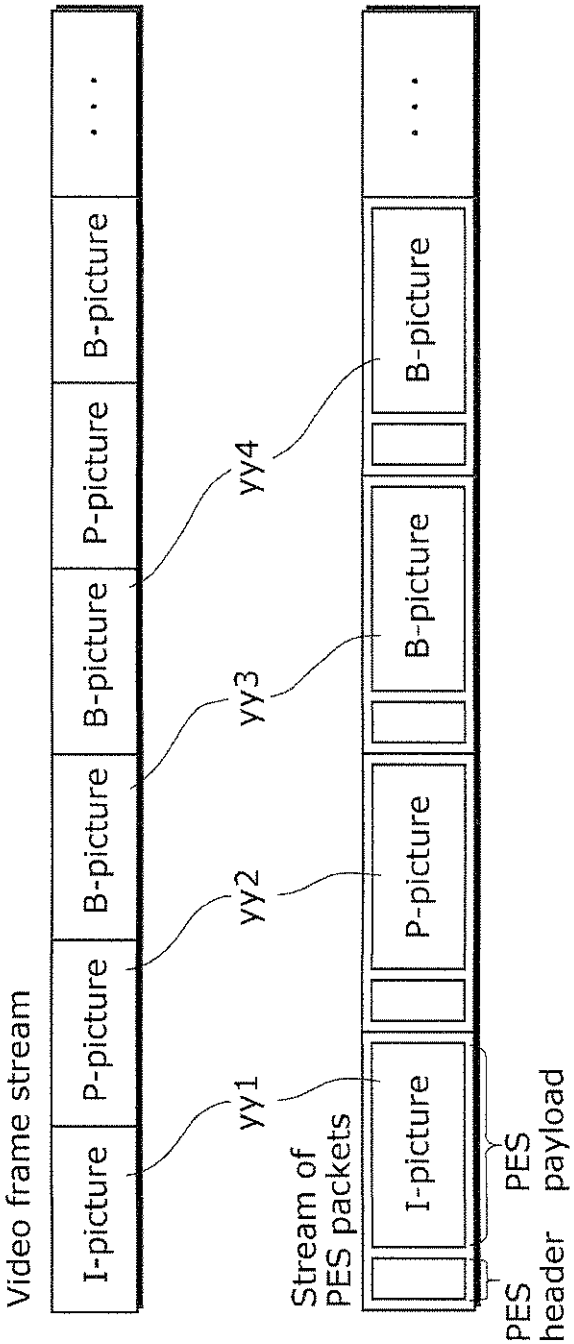

Video frame stream
I-picture
P-picture
B-picture
B-picture
P-picture
B-picture
. . .
yy1
yy2
yy3
yy4
Stream of PES packets
I-picture
P-picture
B-picture
B-picture
. . .
PES header
PES payload

FIG. 25

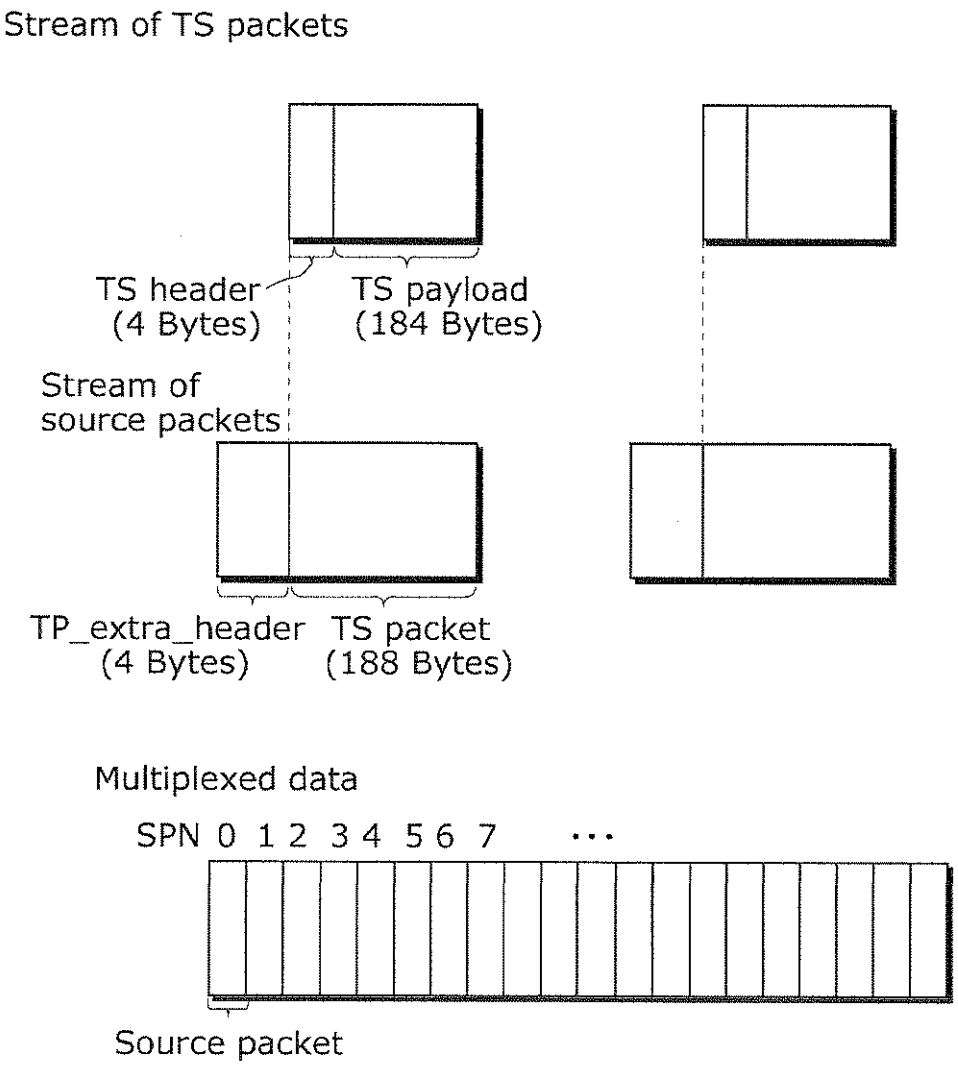

Stream of TS packets
TS header
(4 Bytes)
TS payload
(184 Bytes)
Stream of
source packets
TP_extra_header
(4 Bytes)
TS packet
(188 Bytes)
Multiplexed data
SPN 0 1 2 3 4 5 6 7 ...
Source packet

FIG. 26

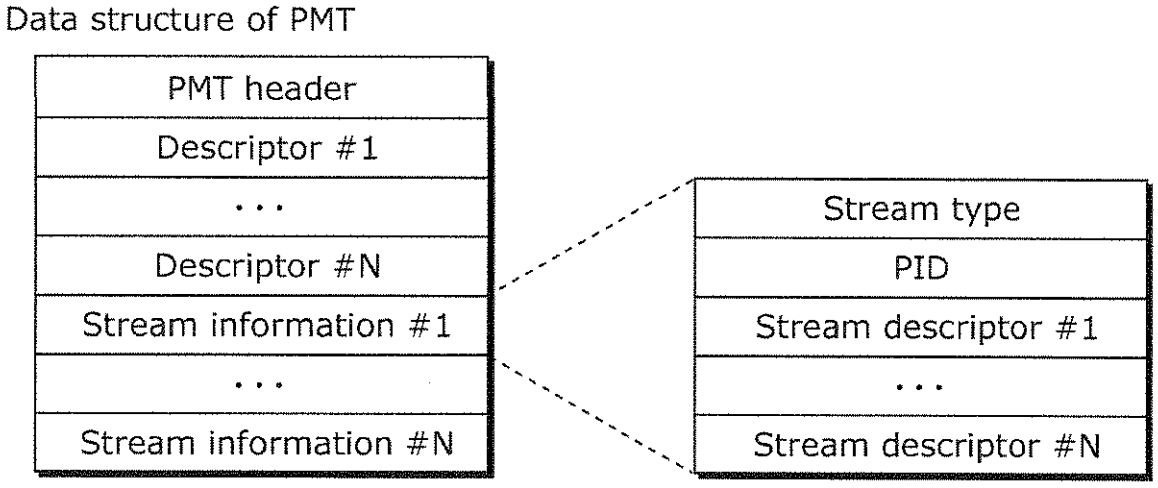

Data structure of PMT
PMT header
Descriptor #1
...
Descriptor #N
Stream information #1
...
Stream information #N
Stream type
PID
Stream descriptor #1
...
Stream descriptor #N

FIG. 27

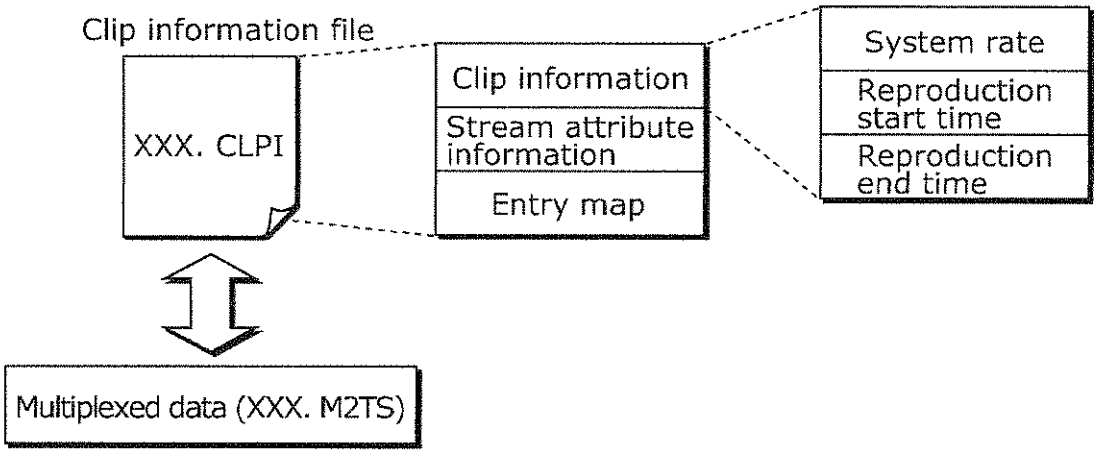

Clip information file
XXX. CLPI
Clip information
Stream attribute information
Entry map
System rate
Reproduction start time
Reproduction end time
Multiplexed data (XXX. M2TS)

FIG. 28

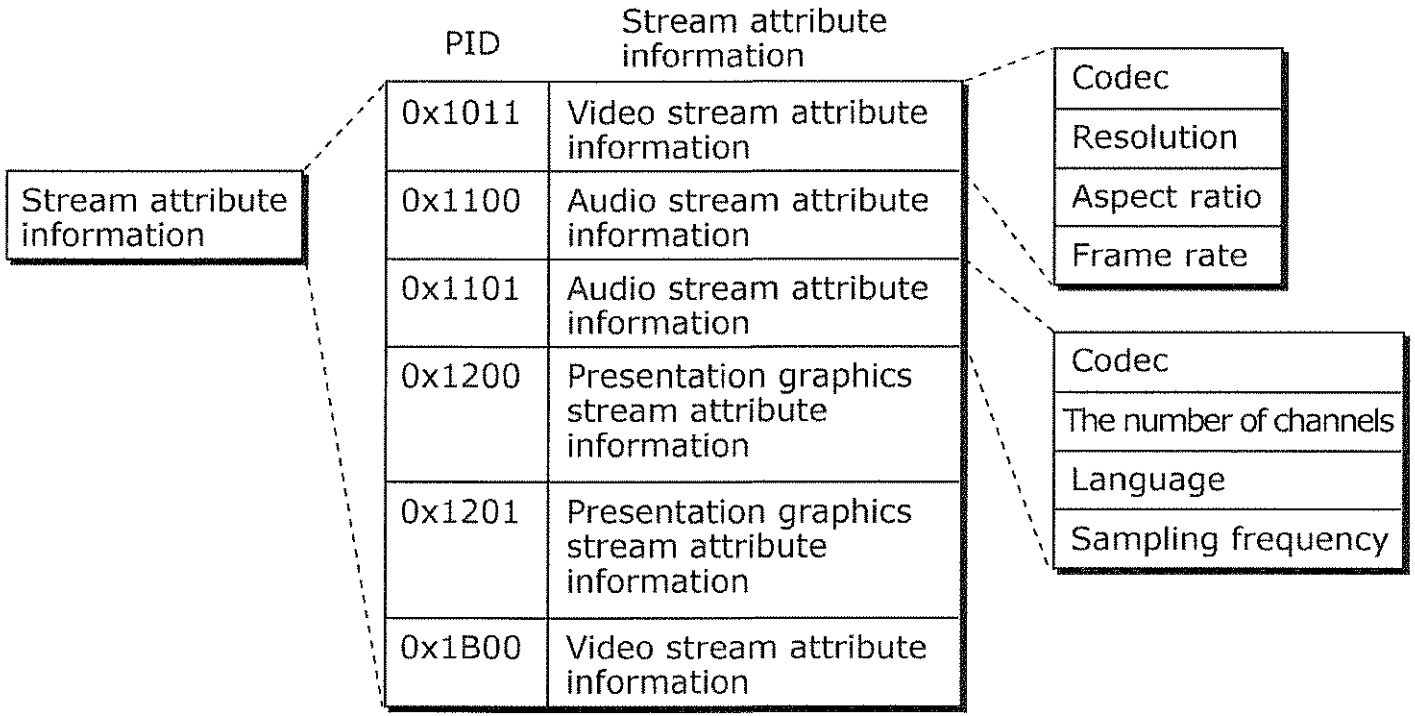

Stream attribute information
PID
Stream attribute information
0x1011
Video stream attribute information
0x1100
Audio stream attribute information
0x1101
Audio stream attribute information
0x1200
Presentation graphics stream attribute information
0x1201
Presentation graphics stream attribute information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

FIG. 29

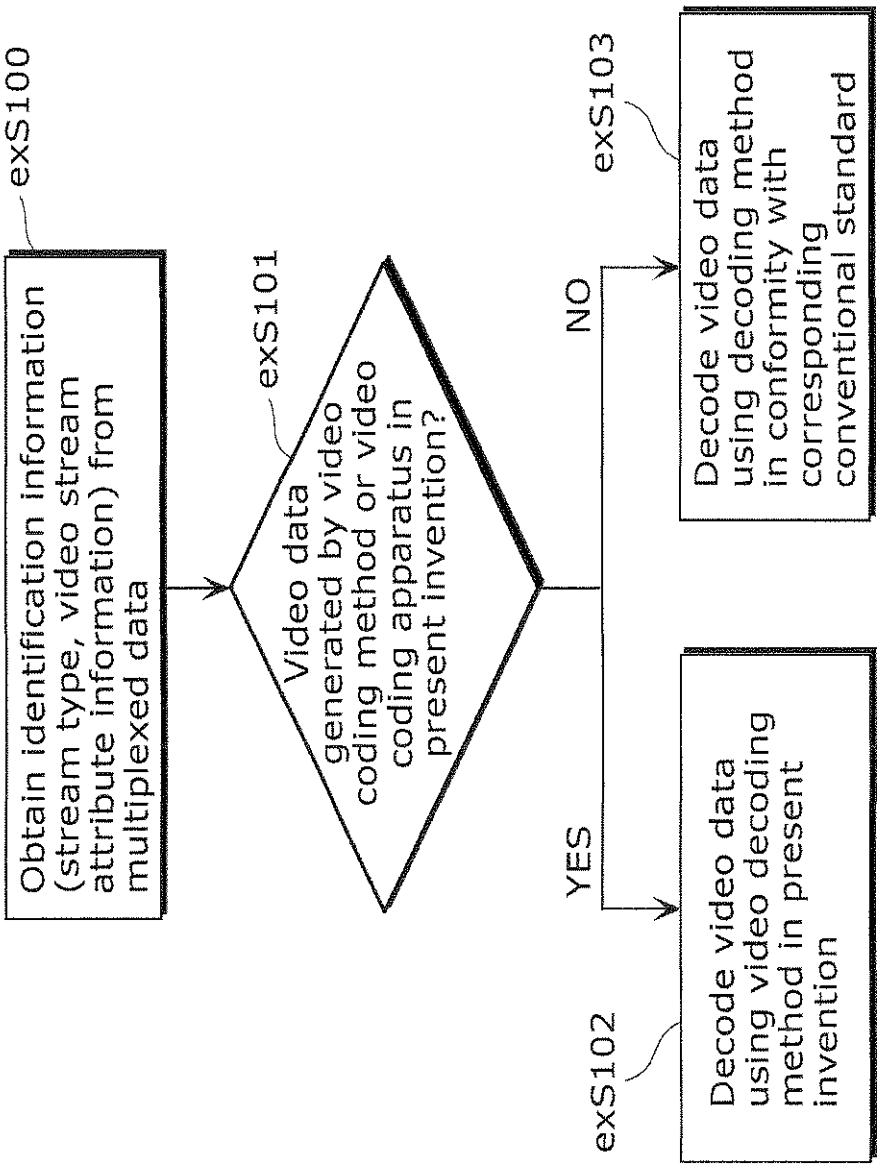

exS100
Obtain identification information (stream type, video stream attribute information) from multiplexed data
exS101
Video data generated by video coding method or video coding apparatus in present invention?
YES
NO
exS102
Decode video data using video decoding method in present invention
exS103
Decode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

FIG. 30

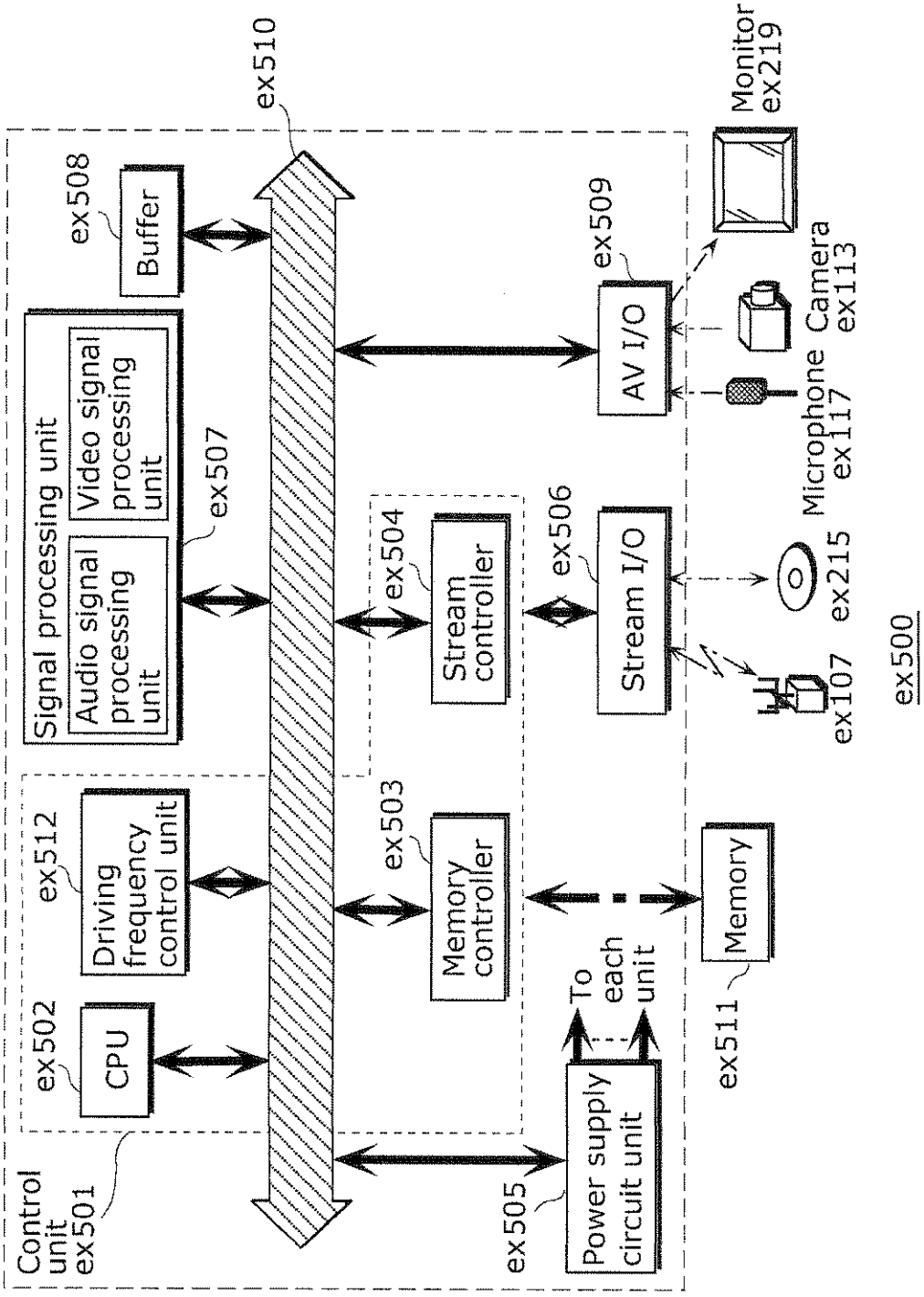
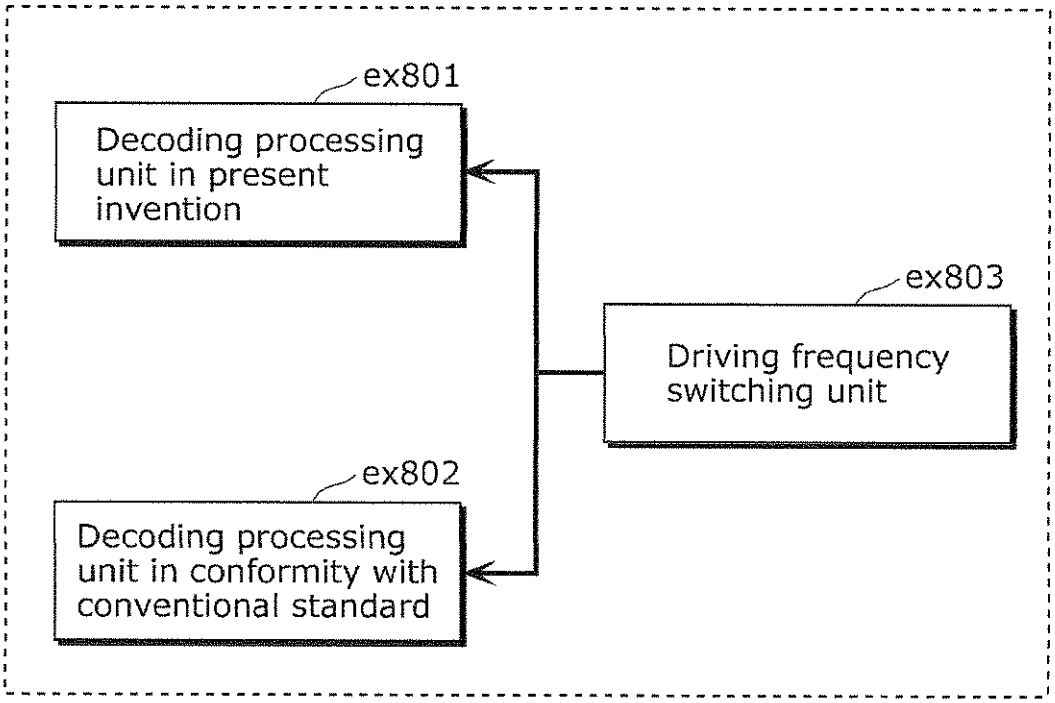

ex500
Control unit ex501
CPU ex502
Driving frequency control unit ex512
Signal processing unit
Audio signal processing unit
Video signal processing unit ex507
Buffer ex508
ex510
Memory controller ex503
Stream controller ex504
Power supply circuit unit ex505
Stream I/O ex506
AV I/O ex509
To each unit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

FIG. 31


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

ex800

FIG. 32

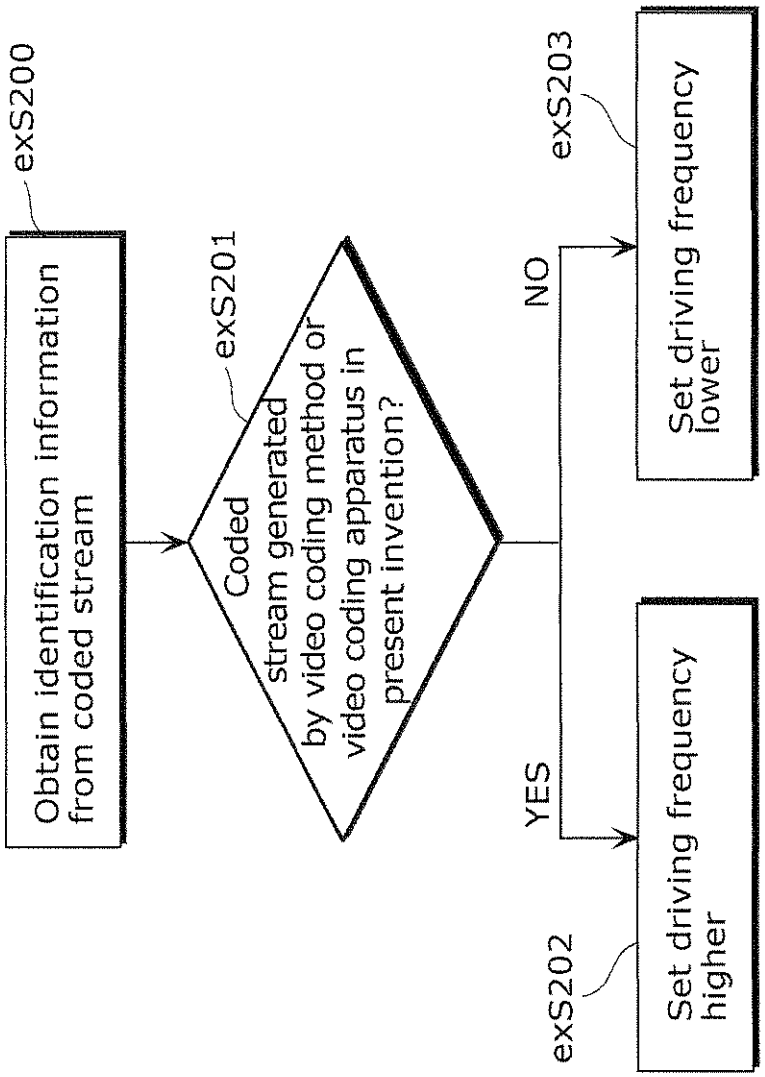

exS200
Obtain identification information from coded stream
exS201
Coded stream generated by video coding method or video coding apparatus in present invention?
YES
NO
exS202
Set driving frequency higher
exS203
Set driving frequency lower

FIG. 33

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

FIG. 34A

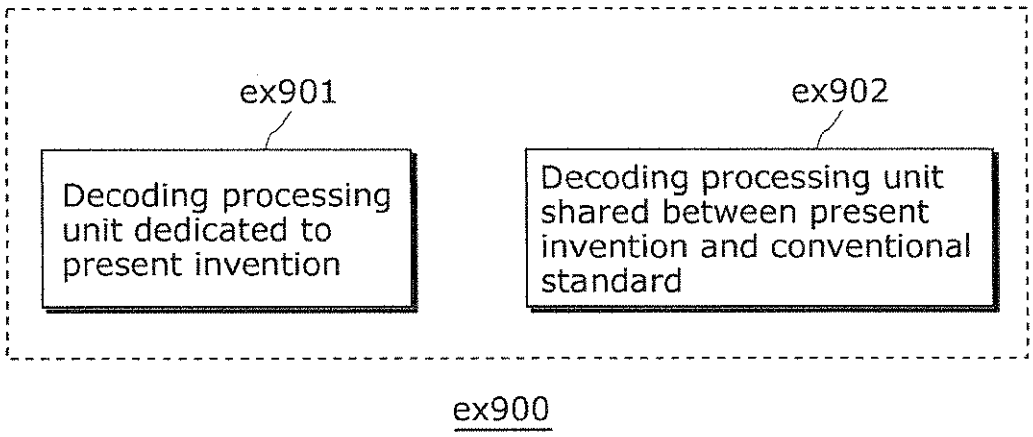
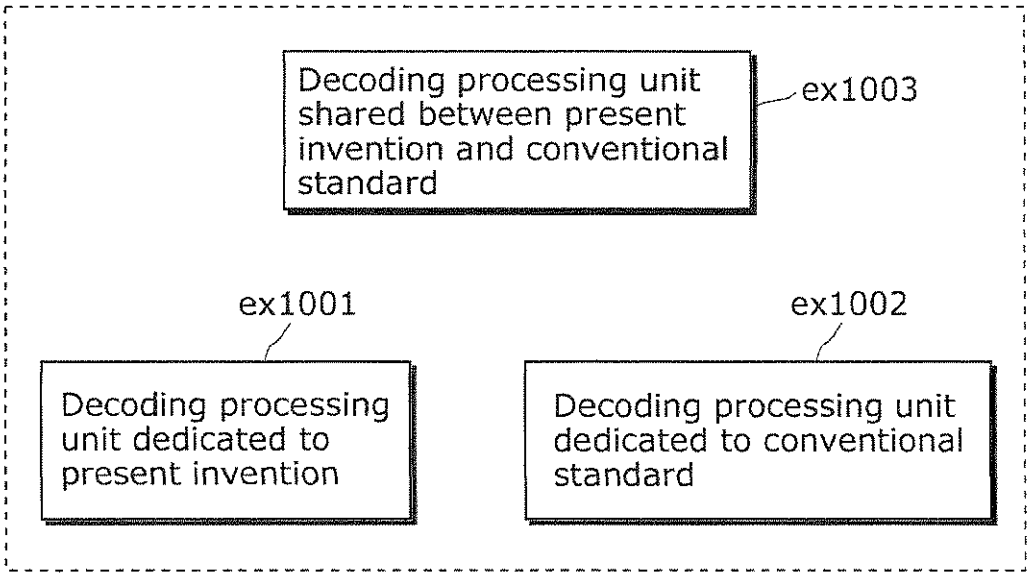


FIG. 34B


Decoding processing unit shared between present invention and conventional standard
ex1003
ex1001
ex1002
Decoding processing unit dedicated to present invention
Decoding processing unit dedicated to conventional standard
ex1000