FIG. 1

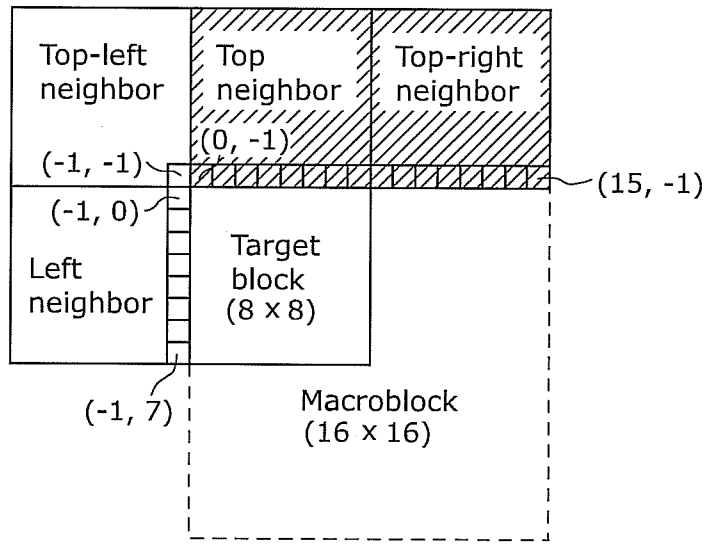

Top-left neighbor
Top neighbor
Top-right neighbor
(0, -1)
(-1, -1)
(15, -1)
(-1, 0)
Left neighbor
Target block (8 x 8)
(-1, 7)
Macroblock (16 x 16)

FIG. 2

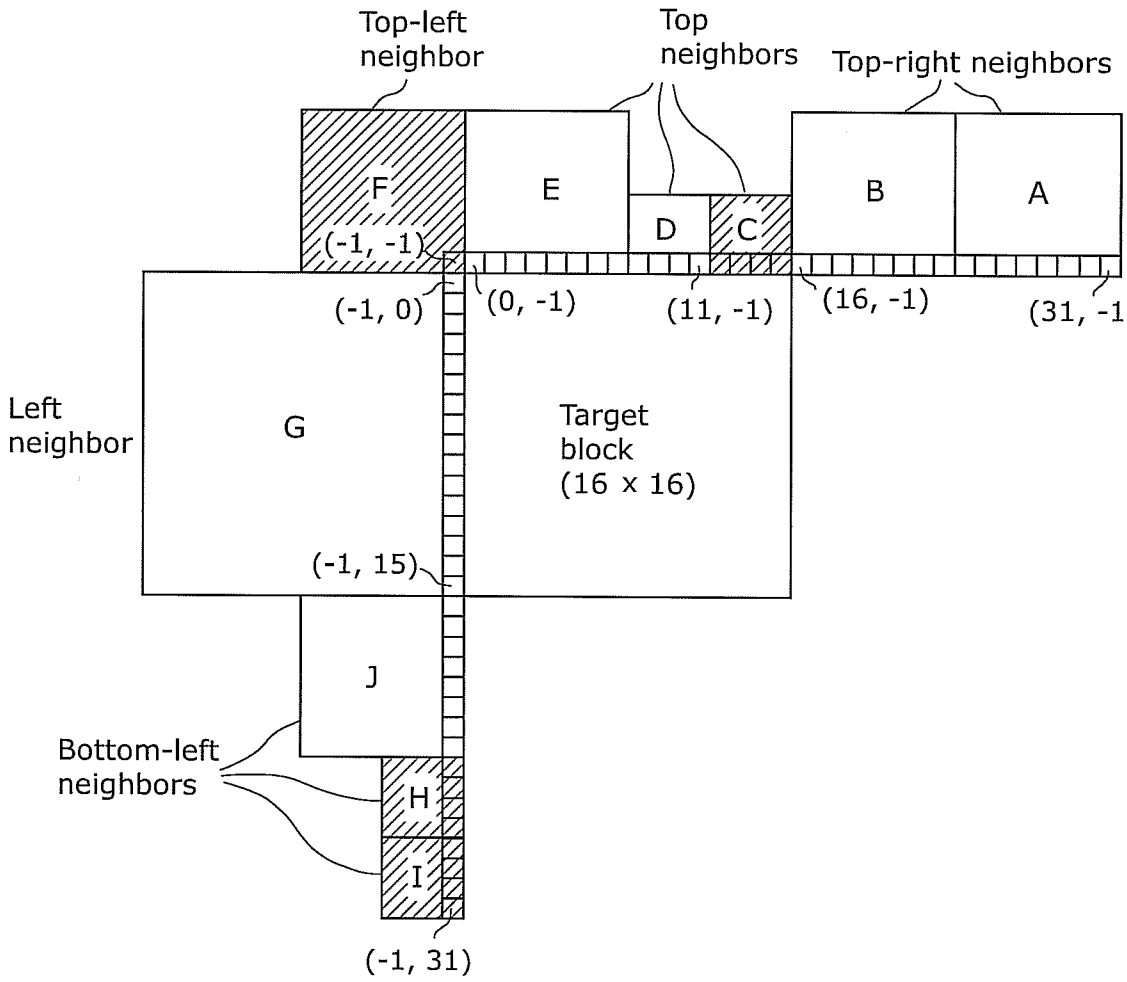

Top-left neighbor
Top neighbors
Top-right neighbors
F
E
D
C
B
A
(-1, -1)
(-1, 0)
(0, -1)
(11, -1)
(16, -1)
(31, -1)
Left neighbor
G
Target block (16 x 16)
(-1, 15)
J
Bottom-left neighbors
H
I
(-1, 31)

FIG. 3

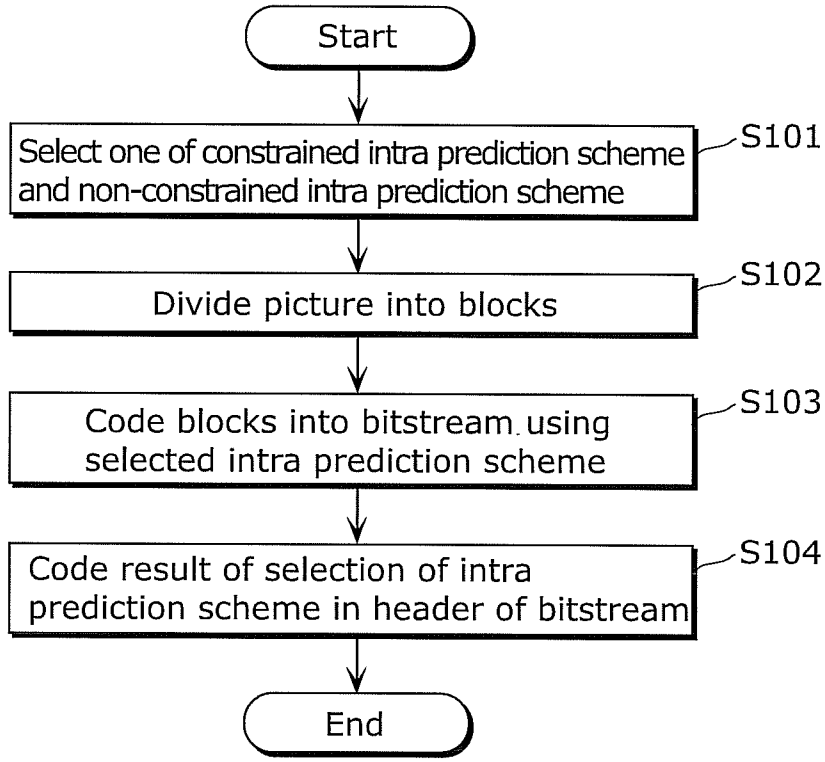



FIG. 4A

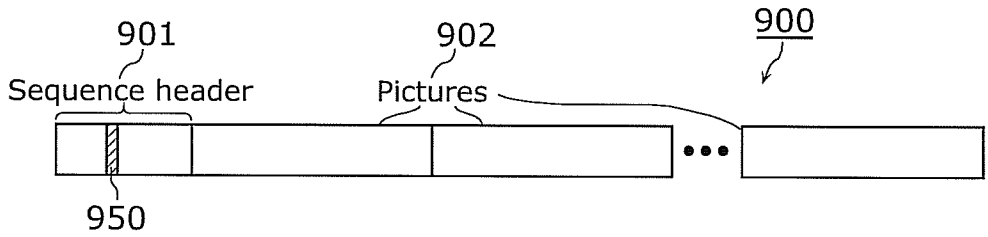



FIG. 4B

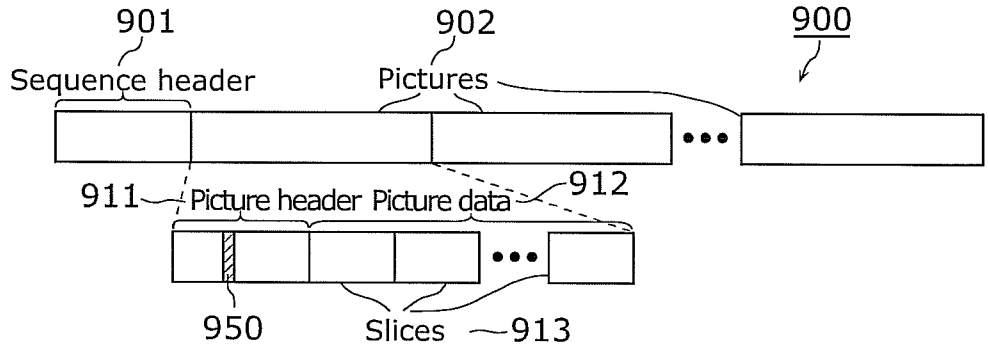


FIG. 4C

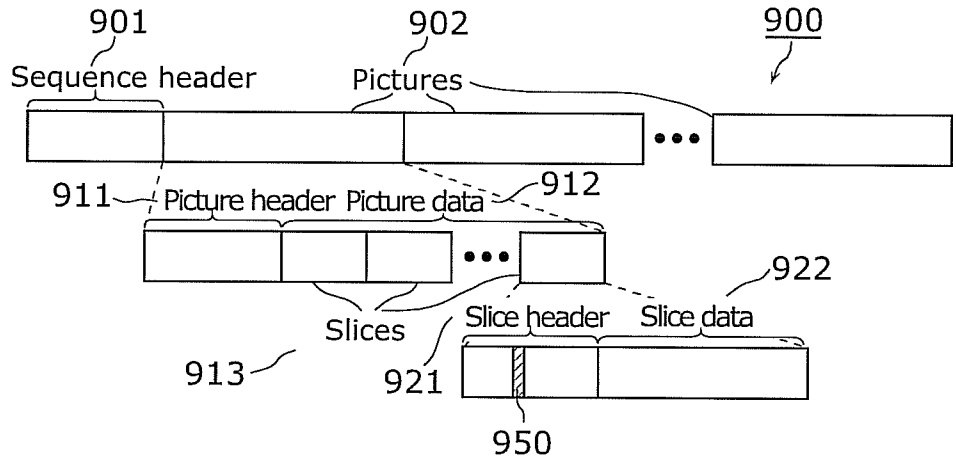

901
902
900
Sequence header
Pictures
911
Picture header
Picture data
912
922
Slices
Slice header
Slice data
913
921
950

FIG. 4D

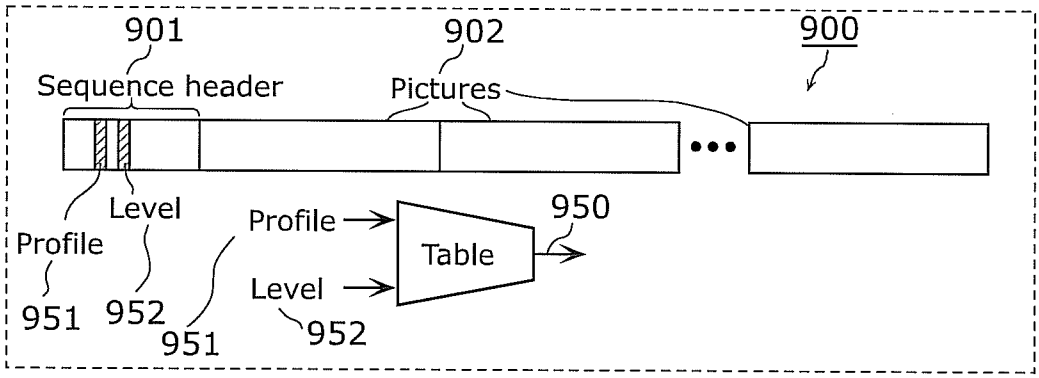

901
902
900
Sequence header
Pictures
Level
Profile
Profile
Table
950
Level
951
952
951
952

FIG. 5

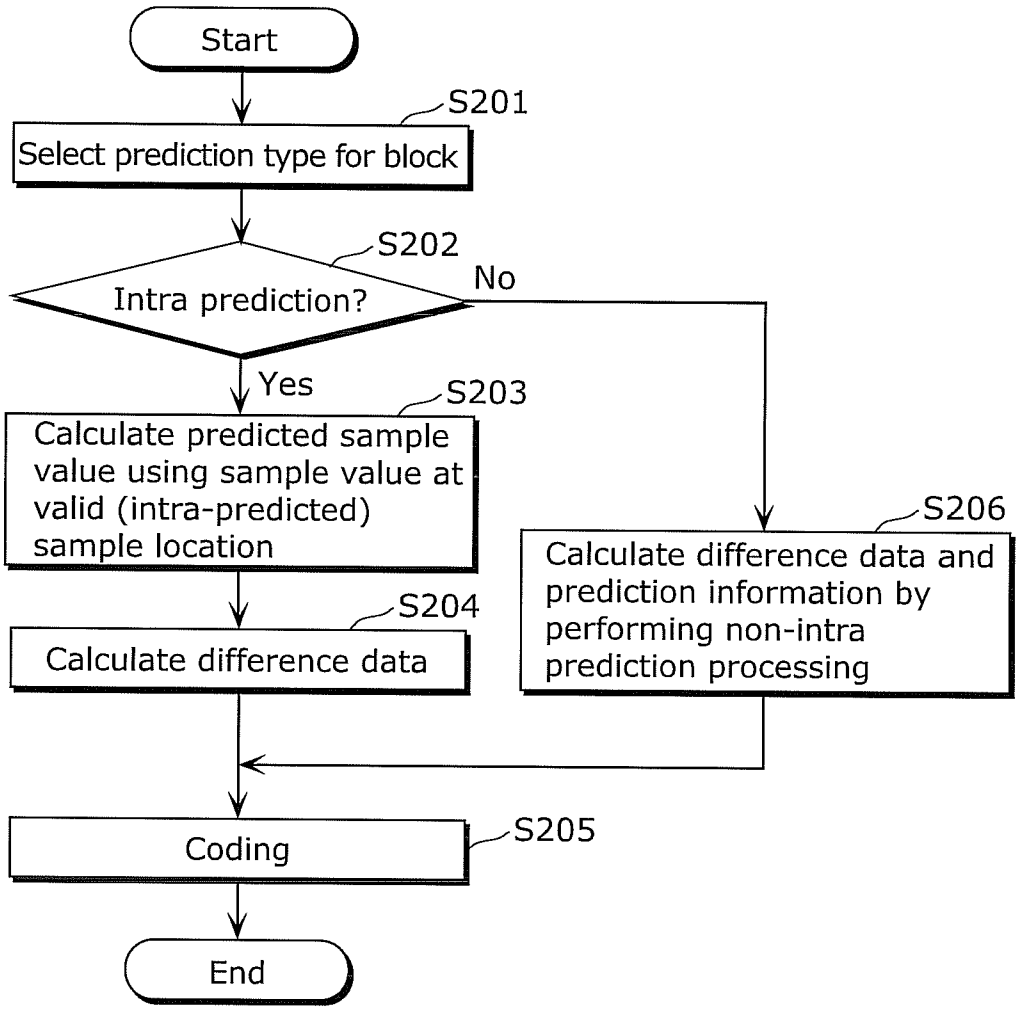

Start
S201
Select prediction type for block
S202
Intra prediction?
No
Yes
S203
Calculate predicted sample value using sample value at valid (intra-predicted) sample location
S204
Calculate difference data
S206
Calculate difference data and prediction information by performing non-intra prediction processing
Coding
S205
End

FIG. 6

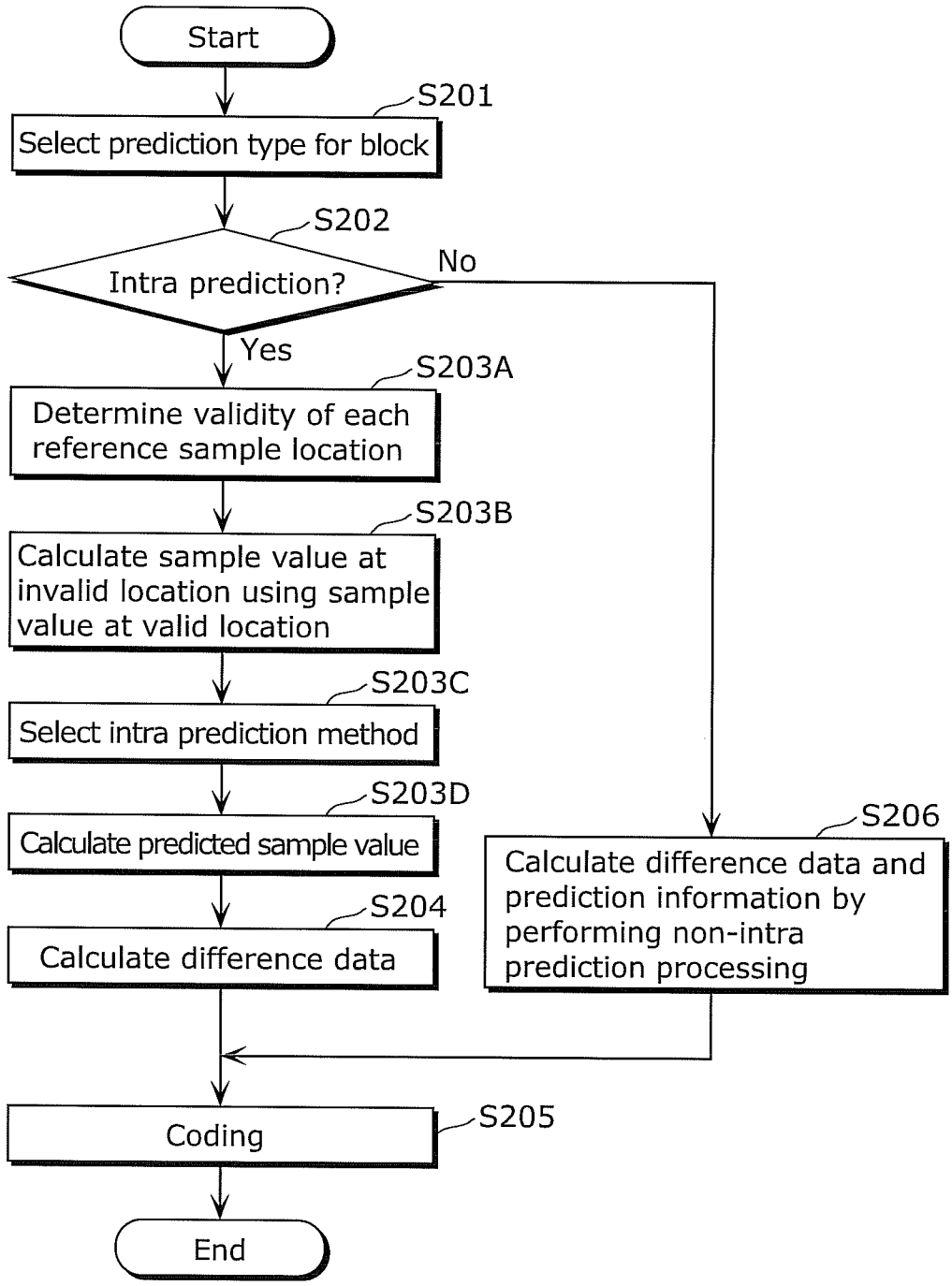

Start
S201
Select prediction type for block
S202
Intra prediction?
No
Yes
S203A
Determine validity of each reference sample location
S203B
Calculate sample value at invalid location using sample value at valid location
S203C
Select intra prediction method
S203D
Calculate predicted sample value
S204
Calculate difference data
S206
Calculate difference data and prediction information by performing non-intra prediction processing
Coding
S205
End

FIG. 7

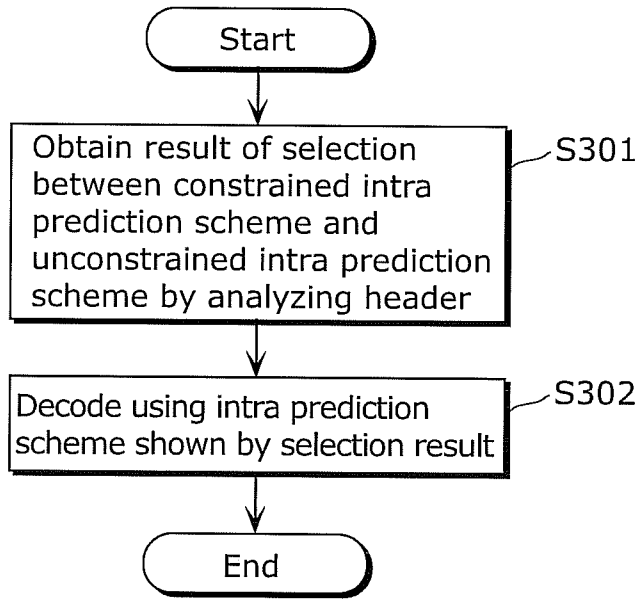

Start
Obtain result of selection between constrained intra prediction scheme and unconstrained intra prediction scheme by analyzing header
S301
Decode using intra prediction scheme shown by selection result
S302
End

FIG. 8

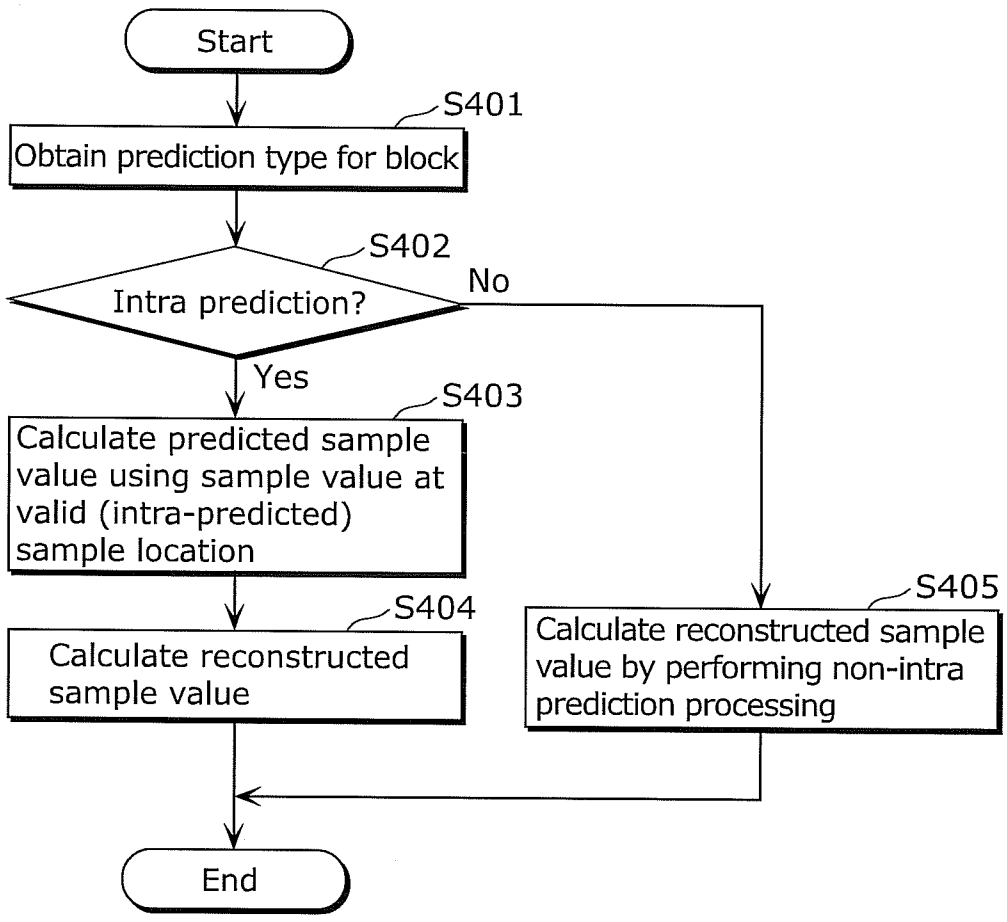

Start
S401
Obtain prediction type for block
S402
Intra prediction?
No
Yes
S403
Calculate predicted sample value using sample value at valid (intra-predicted) sample location
S404
Calculate reconstructed sample value
S405
Calculate reconstructed sample value by performing non-intra prediction processing
End

FIG. 9

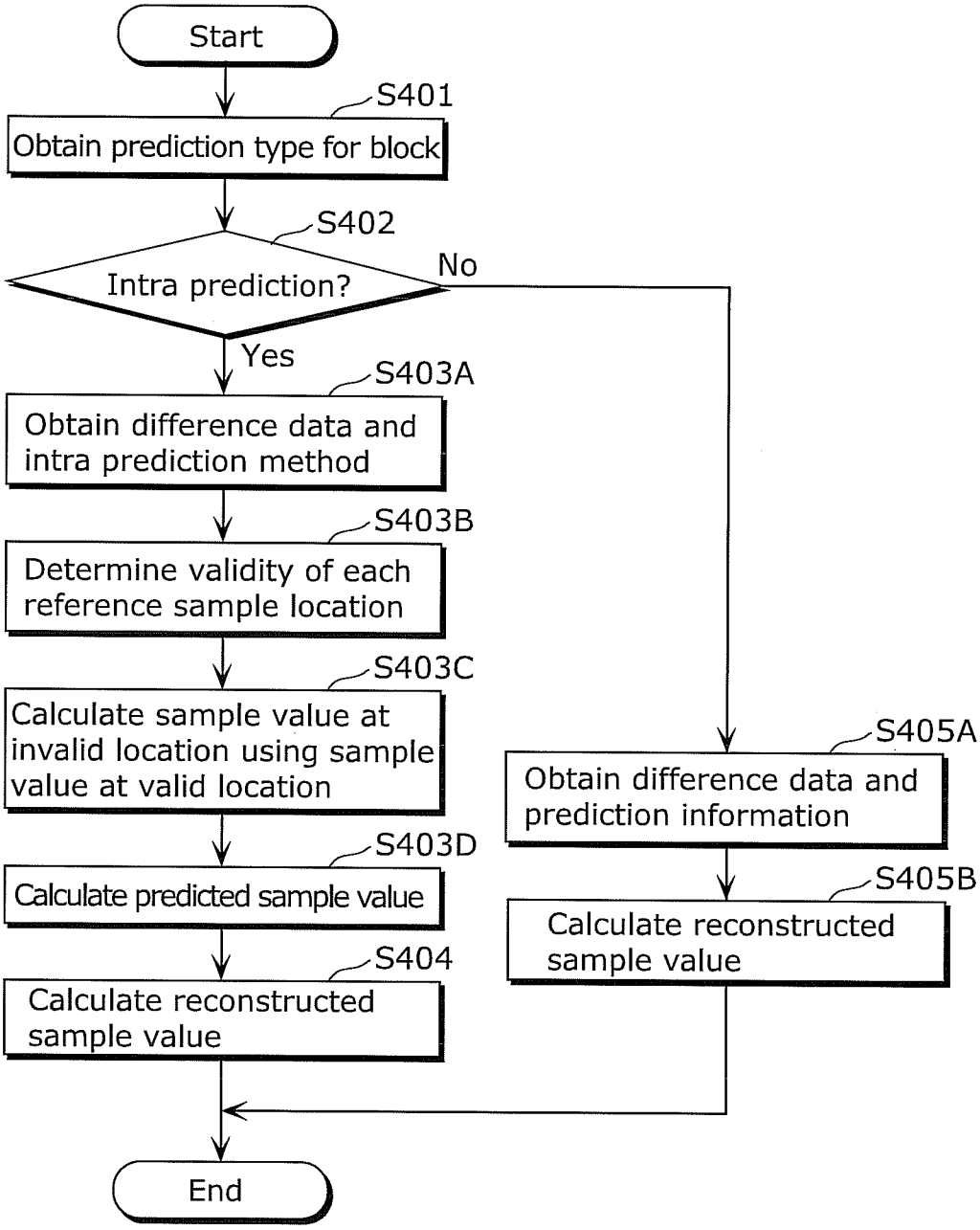

Start
S401
Obtain prediction type for block
S402
Intra prediction?
No
Yes
S403A
Obtain difference data and intra prediction method
S403B
Determine validity of each reference sample location
S403C
Calculate sample value at invalid location using sample value at valid location
S403D
Calculate predicted sample value
S404
Calculate reconstructed sample value
S405A
Obtain difference data and prediction information
S405B
Calculate reconstructed sample value
End

FIG. 10

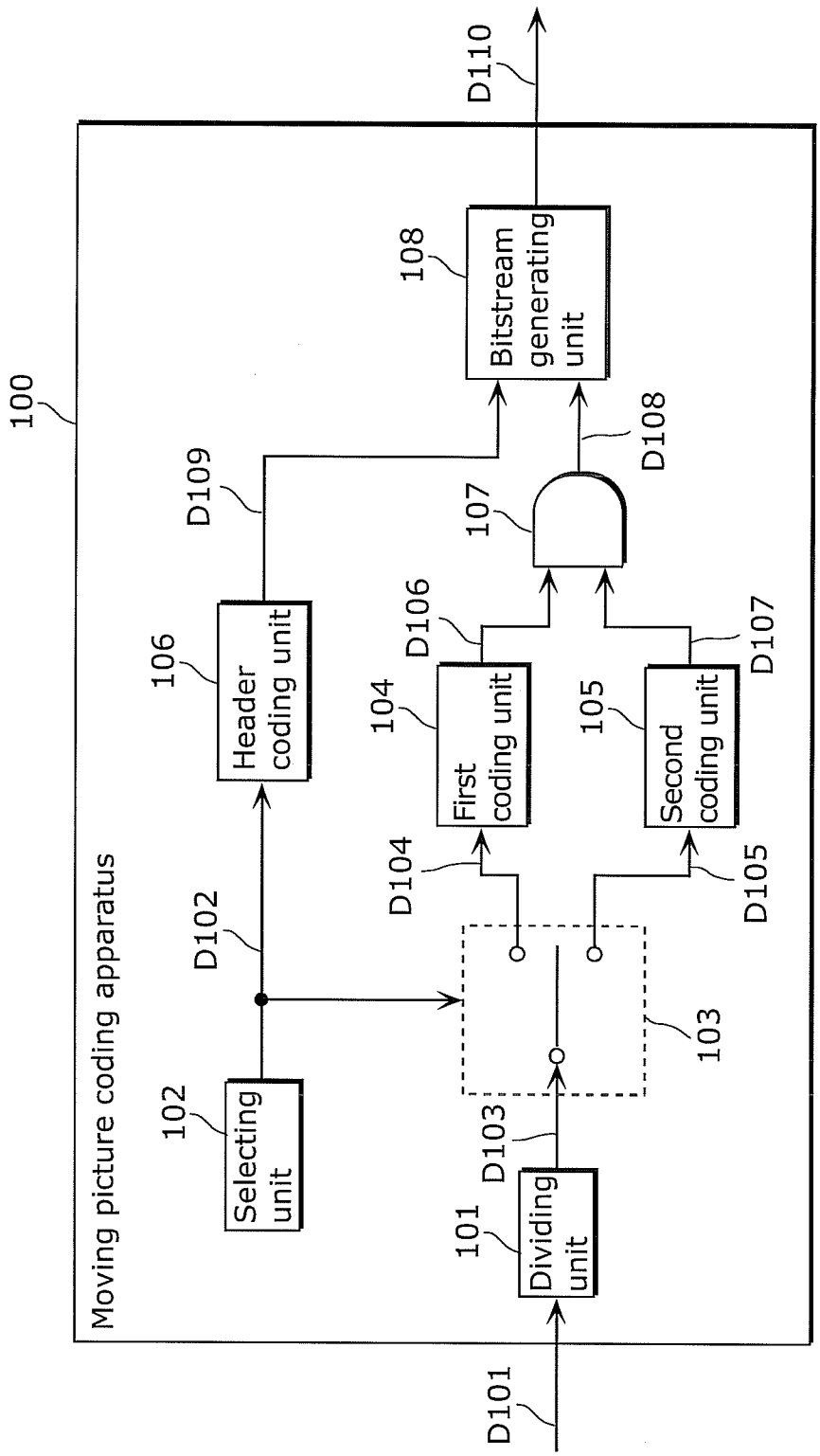

100
Moving picture coding apparatus
D101
101
Dividing unit
D103
102
Selecting unit
D102
103
D104
D105
104
First coding unit
105
Second coding unit
D106
D107
106
Header coding unit
D109
107
D108
108
Bitstream generating unit
D110

FIG. 11

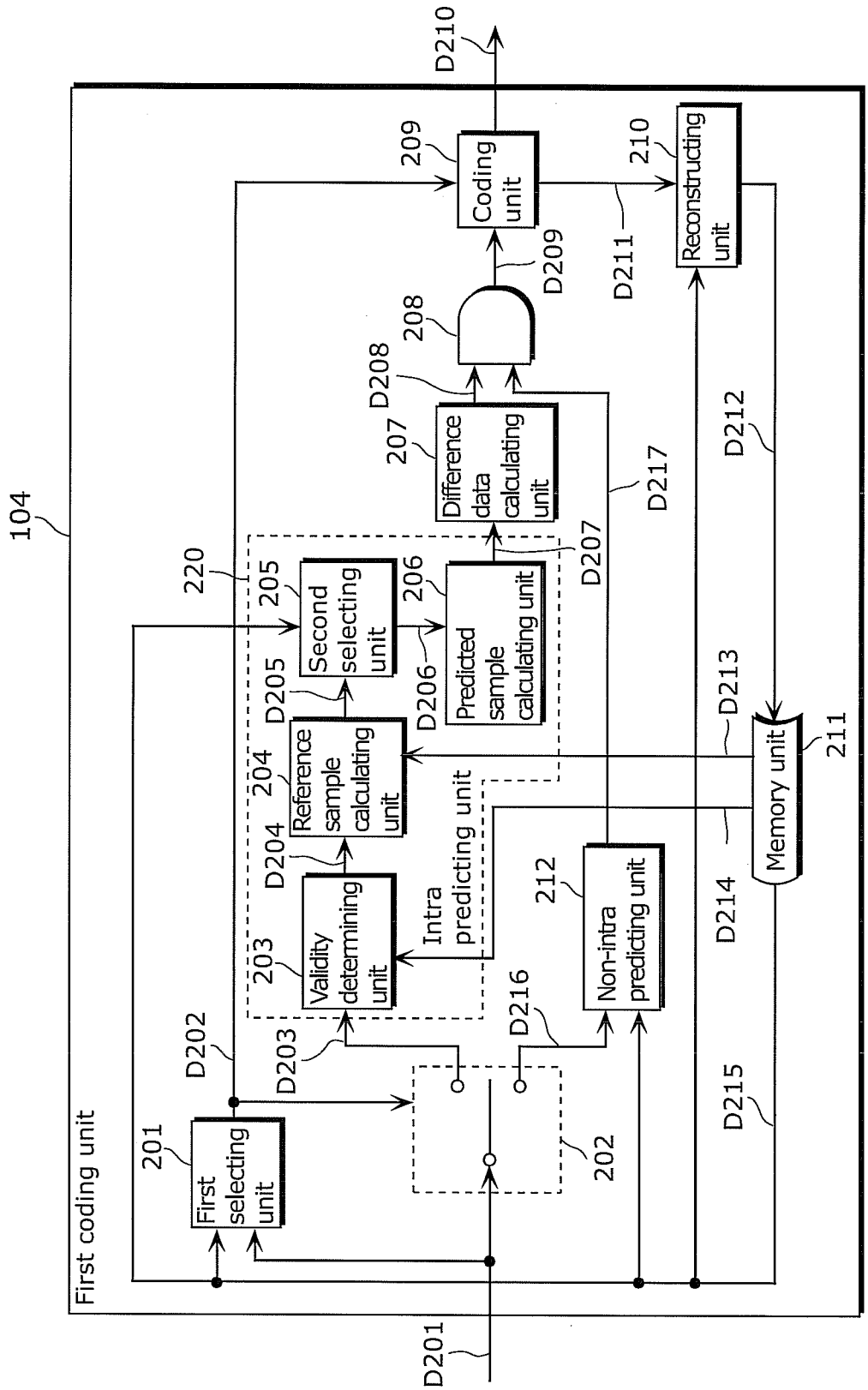

104
First coding unit
D201
201
First selecting unit
D202
D203
202
220
203
Validity determining unit
204
Reference sample calculating unit
205
Second selecting unit
206
Predicted sample calculating unit
Intra predicting unit
212
Non-intra predicting unit
D204
D205
D206
D207
D208
D209
D210
D211
D212
D213
D214
D215
D216
D217
207
Difference data calculating unit
208
209
Coding unit
210
Reconstructing unit
211
Memory unit

FIG. 12

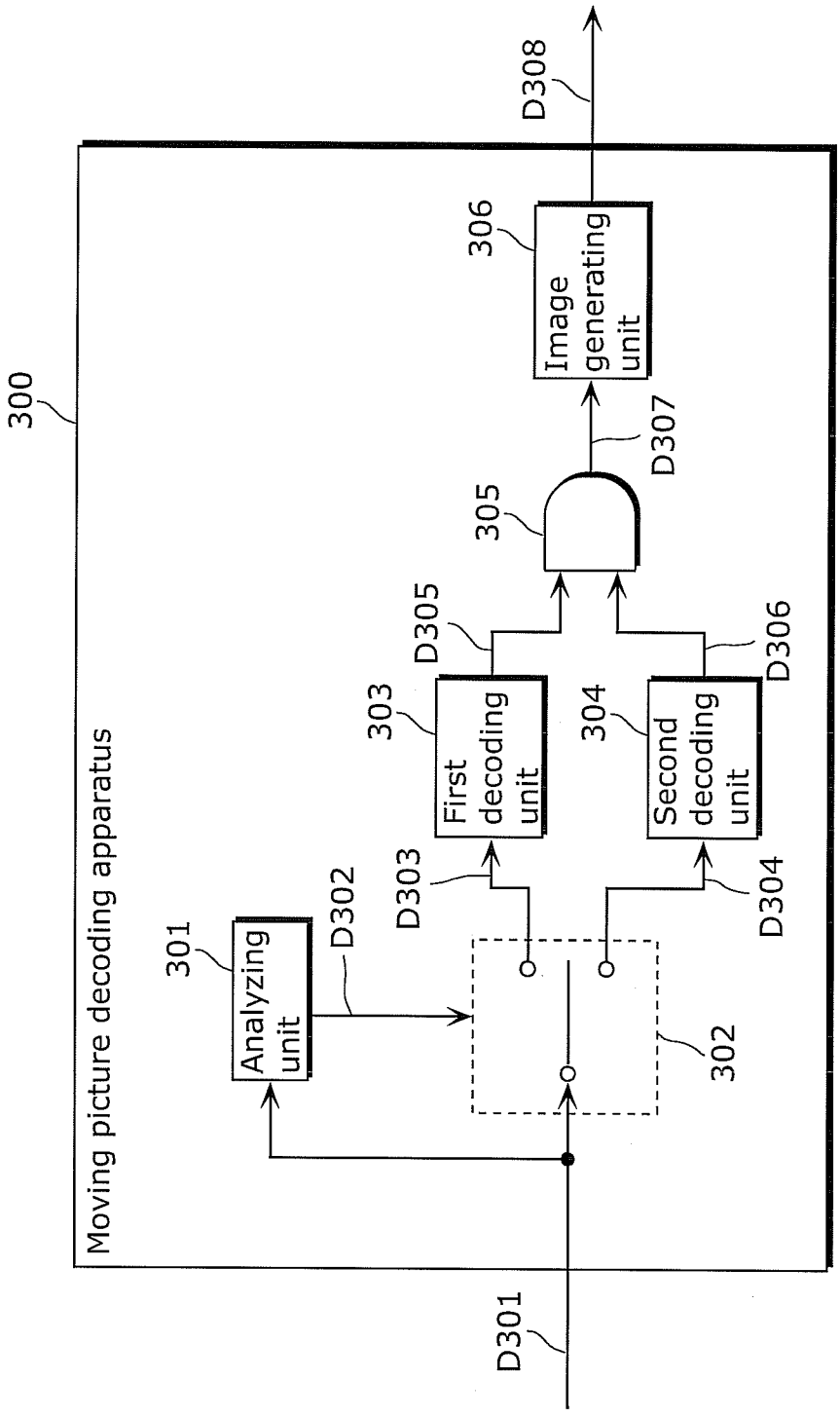

300
Moving picture decoding apparatus
D301
301
Analyzing unit
D302
302
D303
303
First decoding unit
D305
304
Second decoding unit
D306
305
D307
306
Image generating unit
D308
D304

FIG. 13

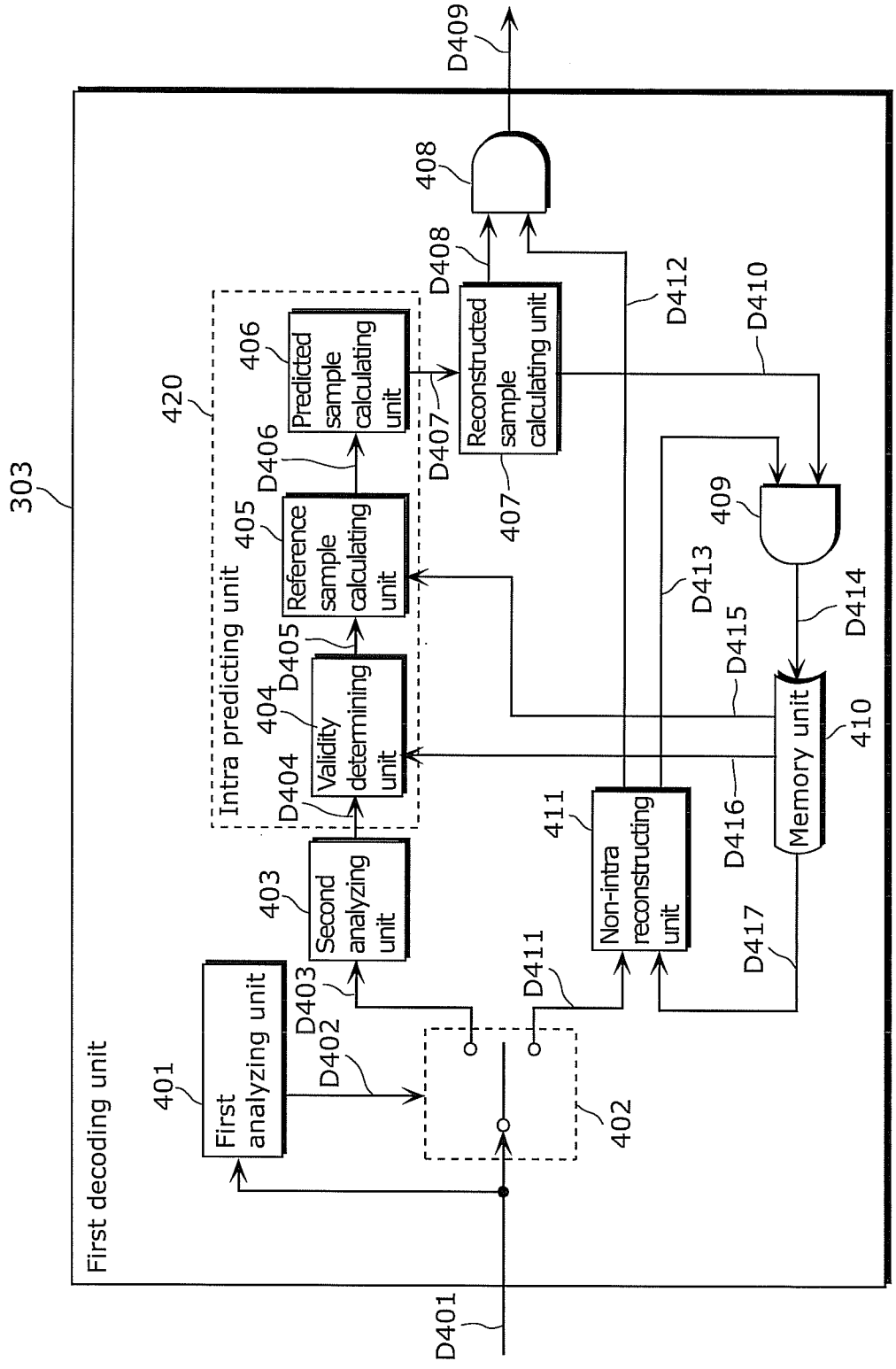

303
First decoding unit
D401
401
First analyzing unit
D402
D403
403
Second analyzing unit
D404
404
Validity determining unit
D405
405
Reference sample calculating unit
D406
406
Predicted sample calculating unit
420
Intra predicting unit
D407
407
Reconstructed sample calculating unit
D408
408
D409
D410
410
Memory unit
D411
411
Non-intra reconstructing unit
D412
D413
409
D414
D415
D416
D417
402

FIG. 14

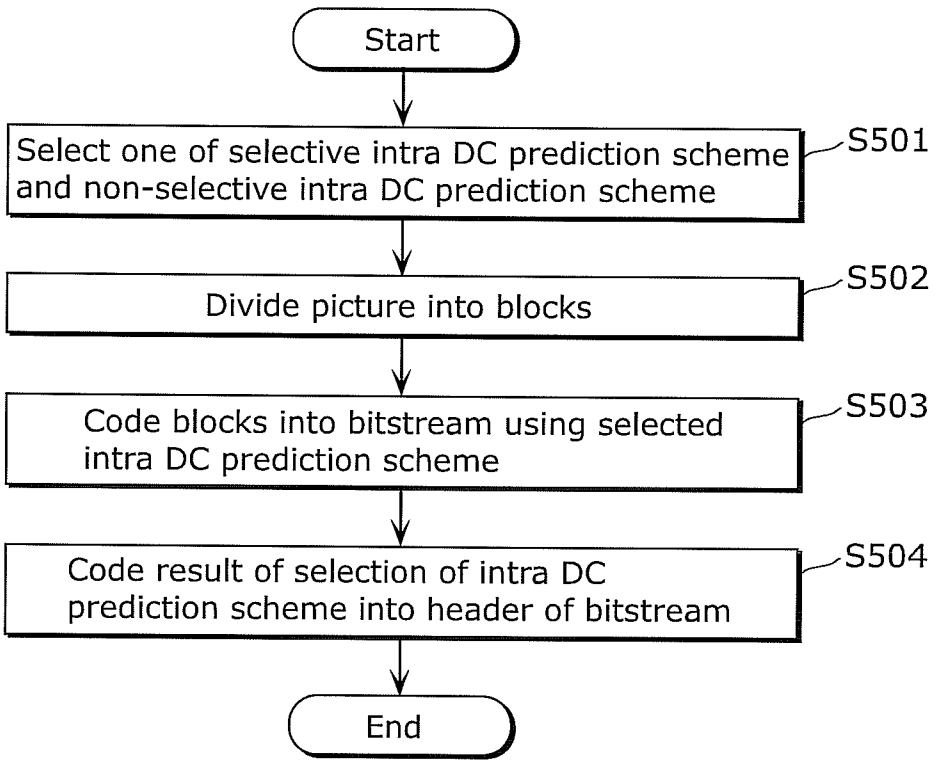



FIG. 15A

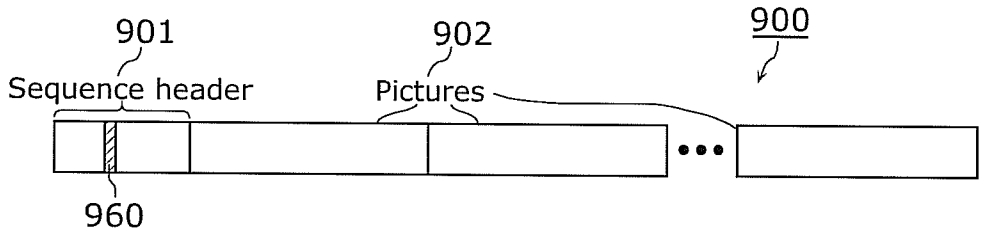



FIG. 15B

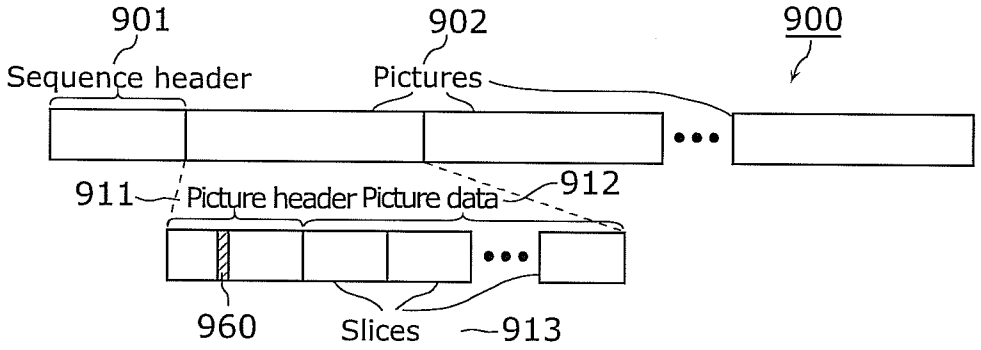


FIG. 15C

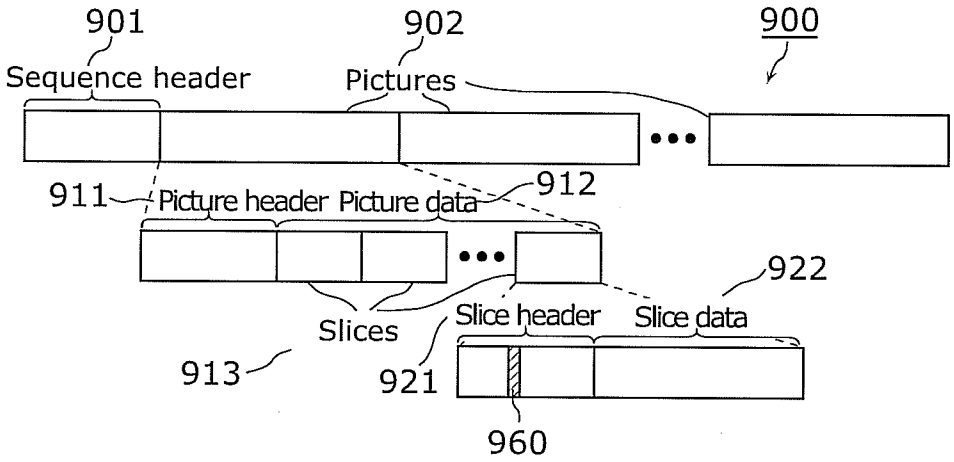



FIG. 15D

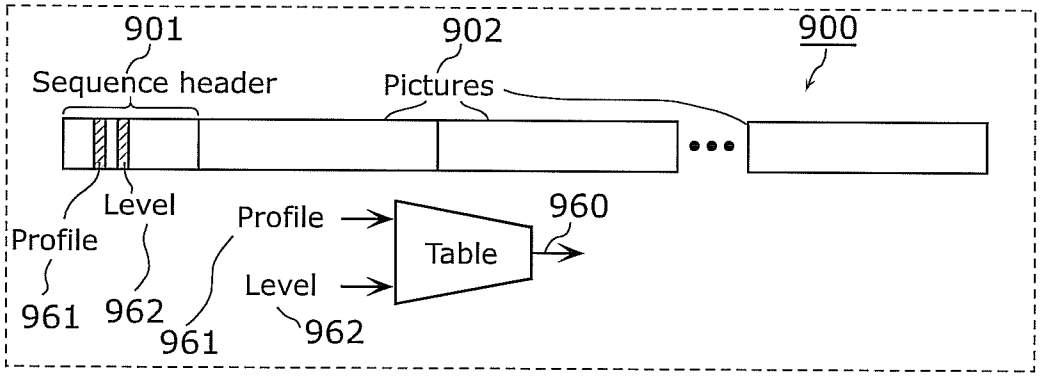



FIG. 16

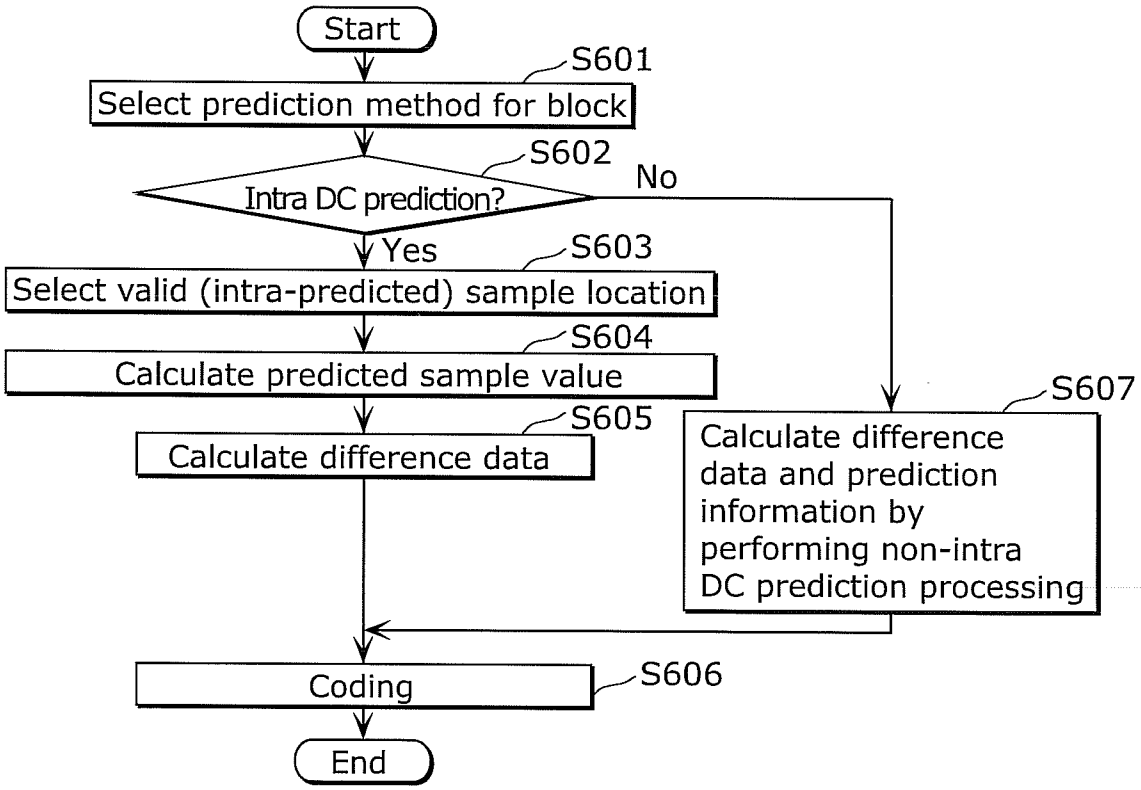


FIG. 17

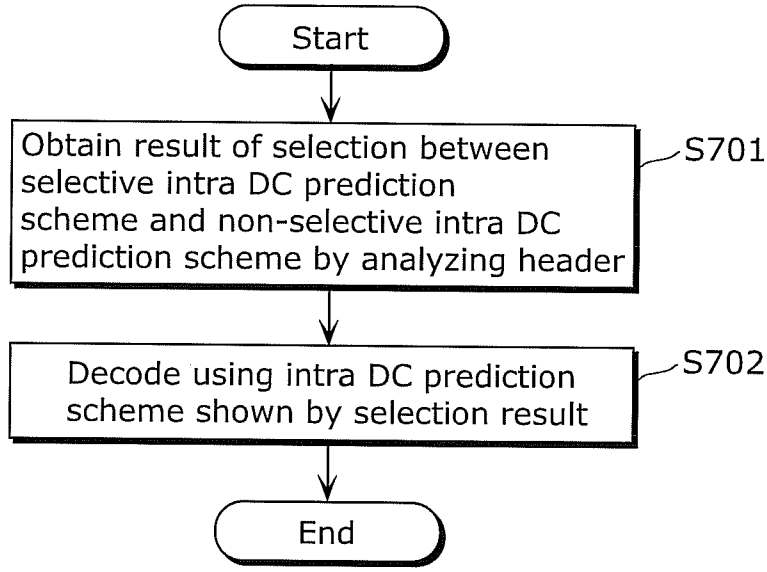

Start
Obtain result of selection between selective intra DC prediction scheme and non-selective intra DC prediction scheme by analyzing header
S701
Decode using intra DC prediction scheme shown by selection result
S702
End

FIG. 18

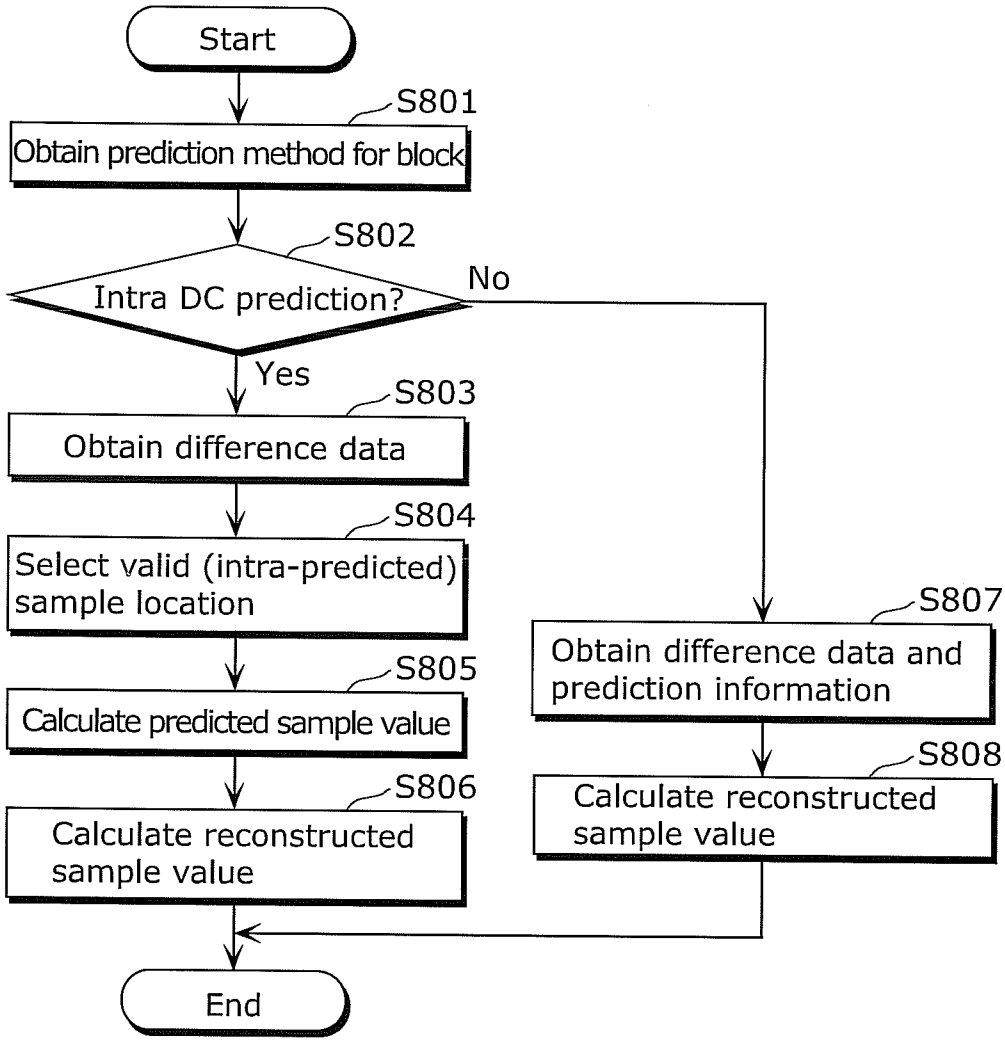

Start
S801
Obtain prediction method for block
S802
Intra DC prediction?
No
Yes
S803
Obtain difference data
S804
Select valid (intra-predicted) sample location
S805
Calculate predicted sample value
S806
Calculate reconstructed sample value
S807
Obtain difference data and prediction information
S808
Calculate reconstructed sample value
End

FIG. 19

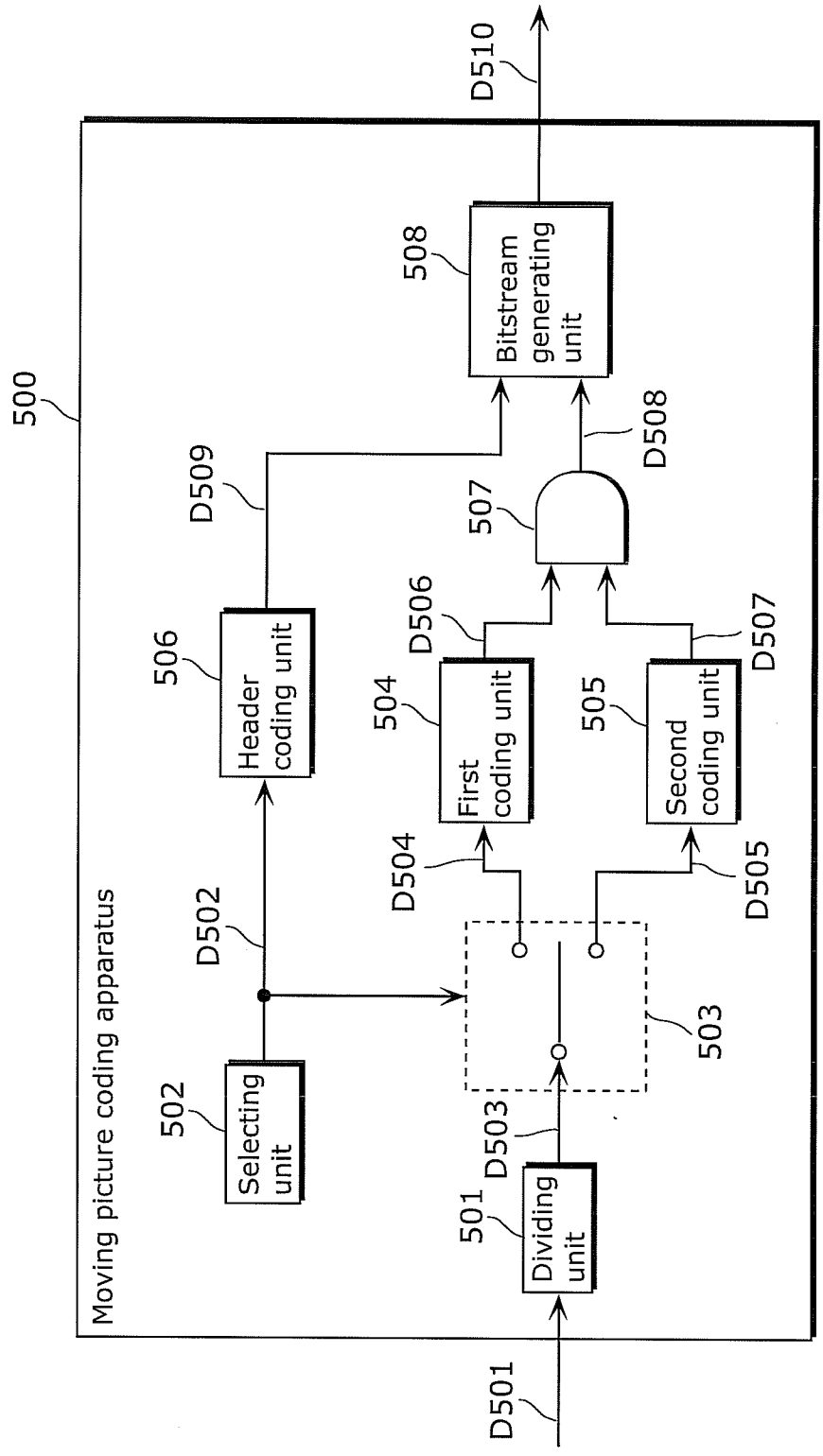

Moving picture coding apparatus
500
D501
501
Dividing unit
D503
502
Selecting unit
D502
503
D504
504
First coding unit
D505
505
Second coding unit
D506
506
Header coding unit
D507
507
D508
508
Bitstream generating unit
D509
D510

FIG. 20

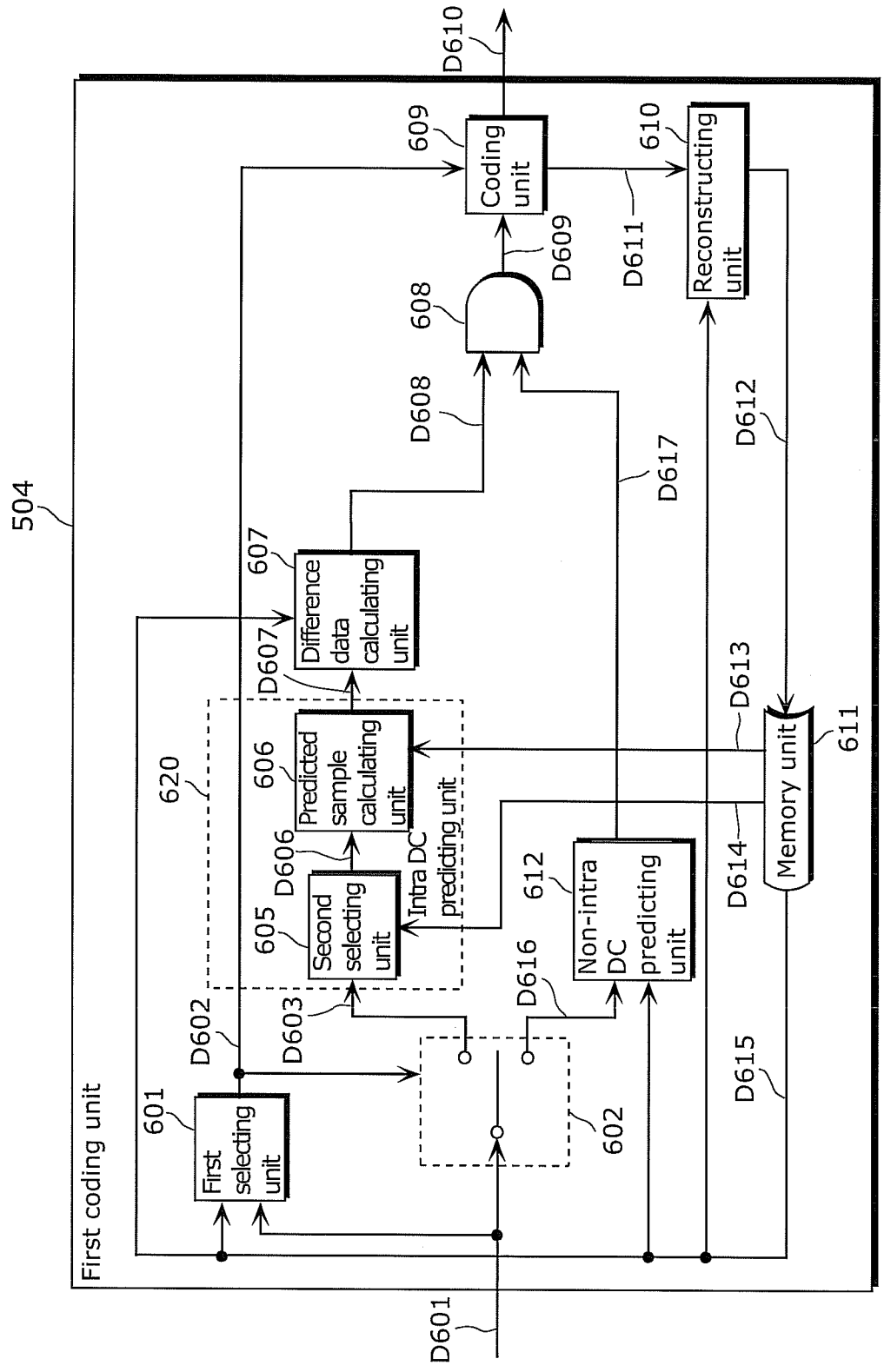

504
First coding unit
D601
601
First selecting unit
602
D602
D603
620
605
Second selecting unit
606
Predicted sample calculating unit
D606
Intra DC predicting unit
607
Difference data calculating unit
D607
608
D608
609
Coding unit
D609
610
Reconstructing unit
D610
D611
612
Non-intra DC predicting unit
D616
D617
D612
D613
611
Memory unit
D614
D615

FIG. 21

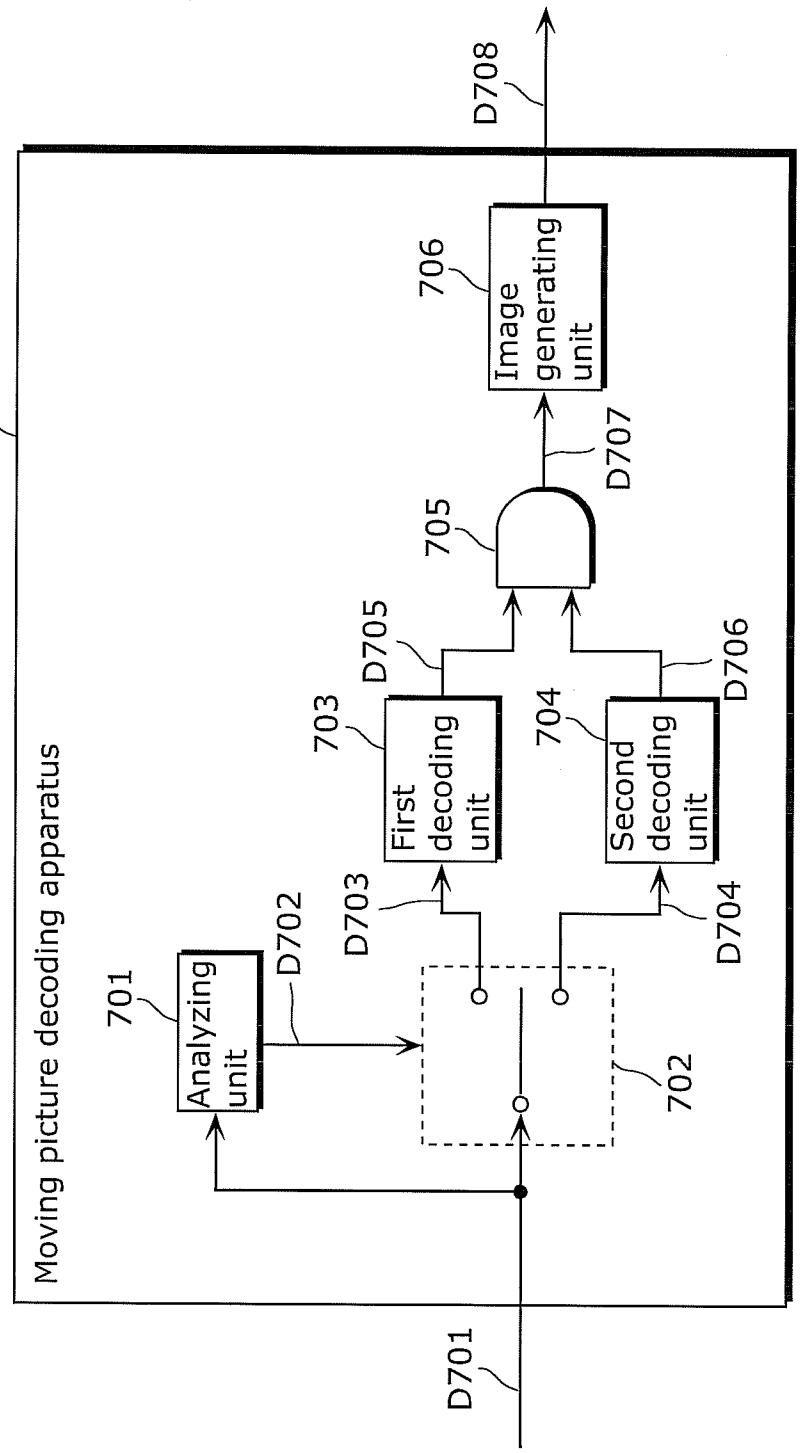

700
Moving picture decoding apparatus
701
Analyzing unit
D702
D703
703
First decoding unit
D705
704
Second decoding unit
D706
705
D707
706
Image generating unit
D708
702
D704
D701

FIG. 22

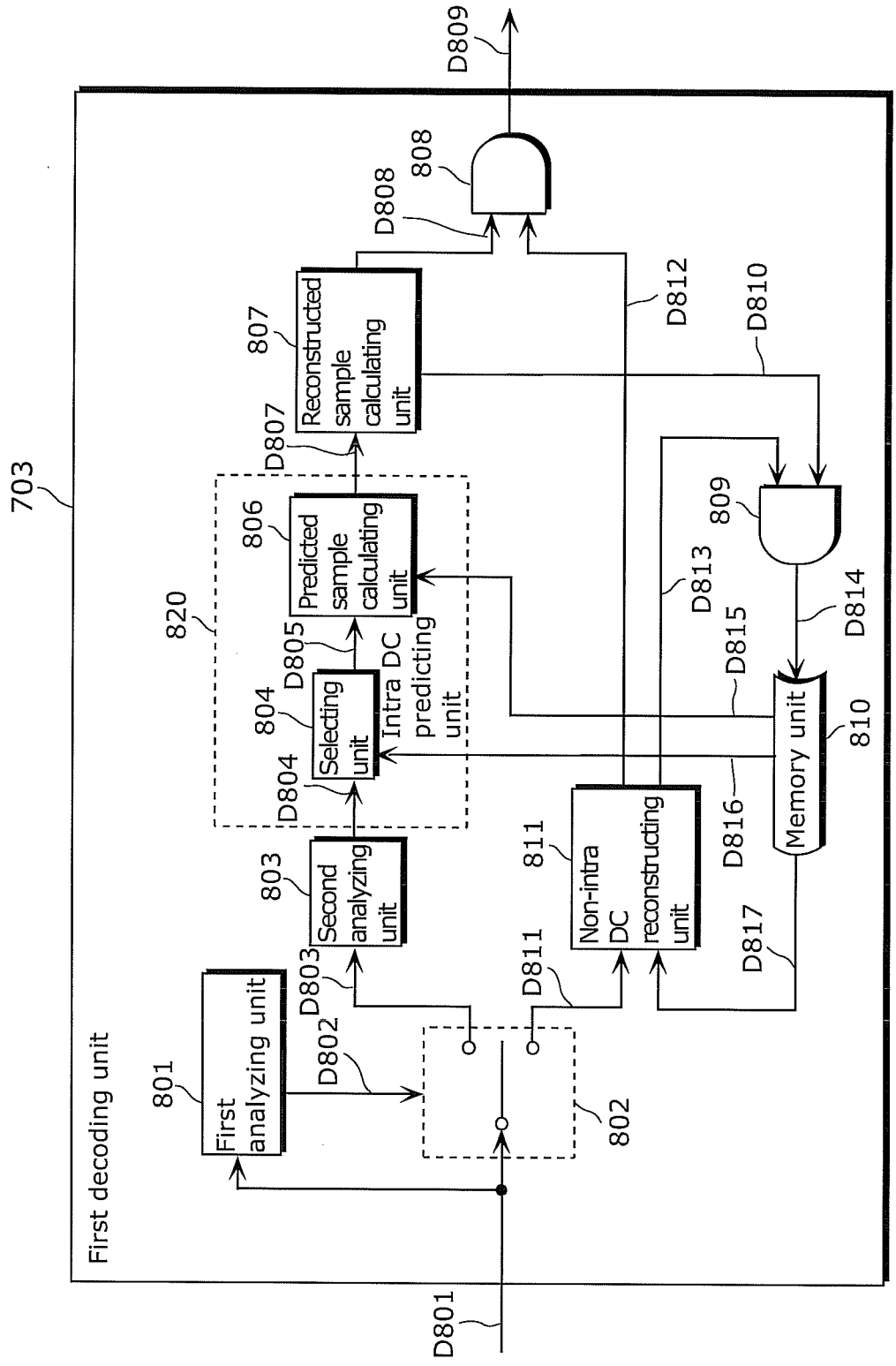

703
First decoding unit
D801
801
First analyzing unit
D802
802
D803
803
Second analyzing unit
D804
804
Selecting unit
D805
Intra DC predicting unit
820
806
Predicted sample calculating unit
D807
807
Reconstructed sample calculating unit
D808
808
D809
D810
D811
811
Non-intra DC reconstructing unit
D812
D813
809
D814
D815
D816
Memory unit
810
D817

FIG. 23

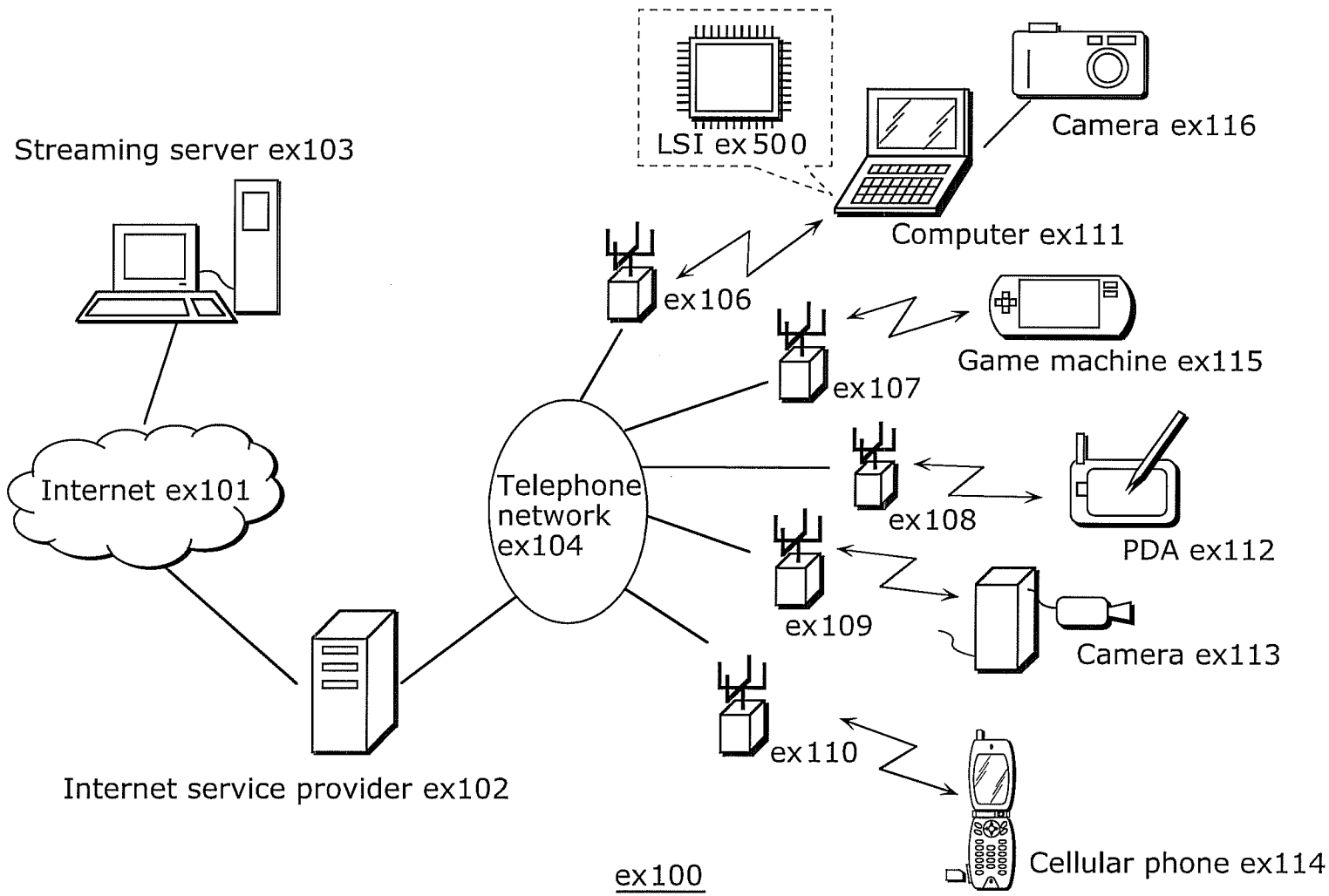

LSI ex500
Camera ex116
Streaming server ex103
Computer ex111
ex106
Game machine ex115
ex107
Internet ex101
Telephone network ex104
ex108
PDA ex112
ex109
Camera ex113
ex110
Internet service provider ex102
Cellular phone ex114
ex100

FIG. 24

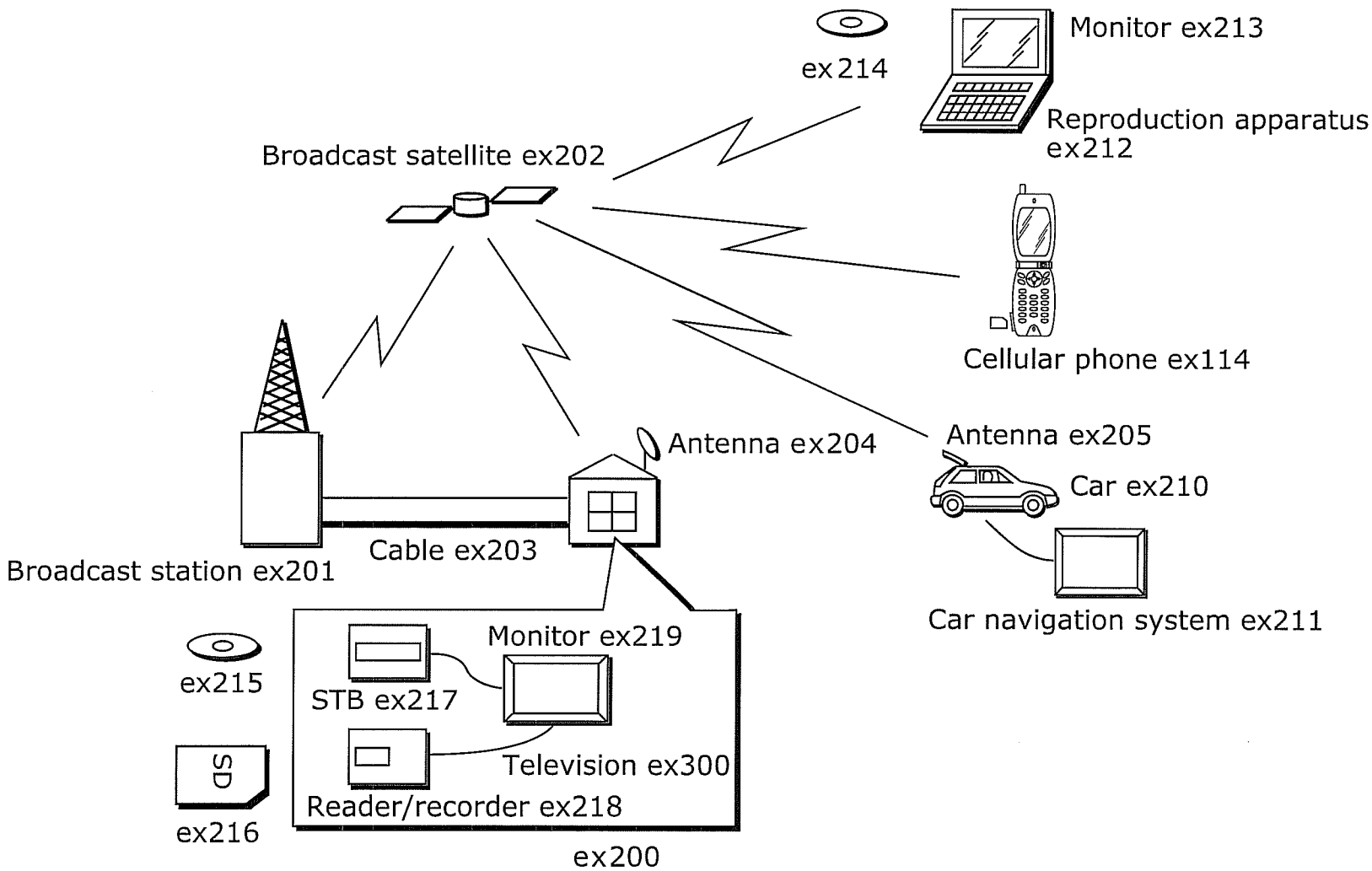

ex214
Monitor ex213
Reproduction apparatus ex212
Broadcast satellite ex202
Cellular phone ex114
Antenna ex204
Antenna ex205
Car ex210
Cable ex203
Broadcast station ex201
Car navigation system ex211
Monitor ex219
ex215
STB ex217
SD
Television ex300
Reader/recorder ex218
ex216
ex200

FIG. 25

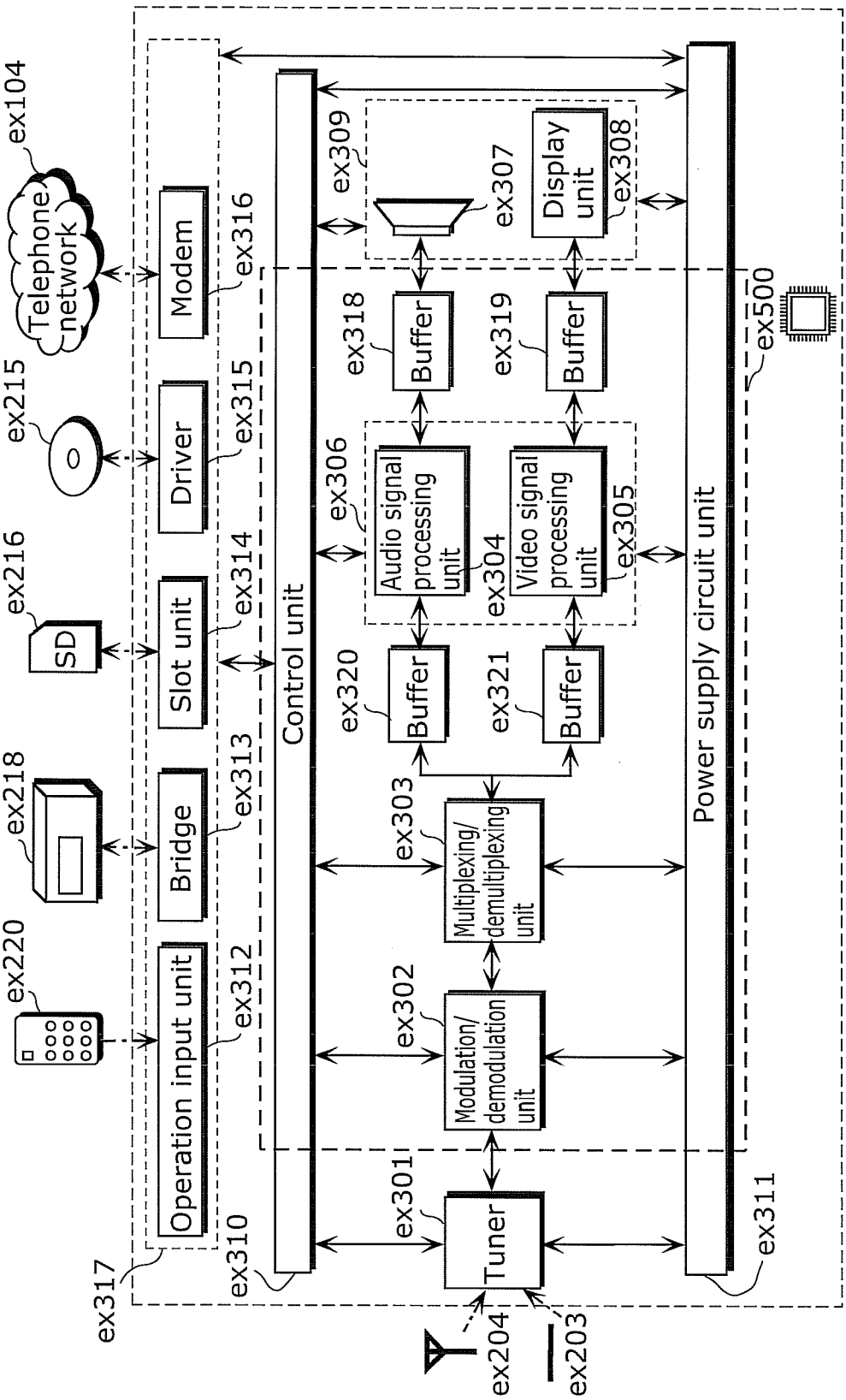

ex104
Telephone network
ex215
ex216
SD
ex218
ex220
ex317
Operation input unit
ex312
Bridge
ex313
Slot unit
ex314
Driver
ex315
Modem
ex316
ex310
Control unit
ex309
ex307
Display unit
ex308
ex318
Buffer
ex319
Buffer
ex306
Audio signal processing unit
ex304
Video signal processing unit
ex305
ex320
Buffer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

FIG. 26

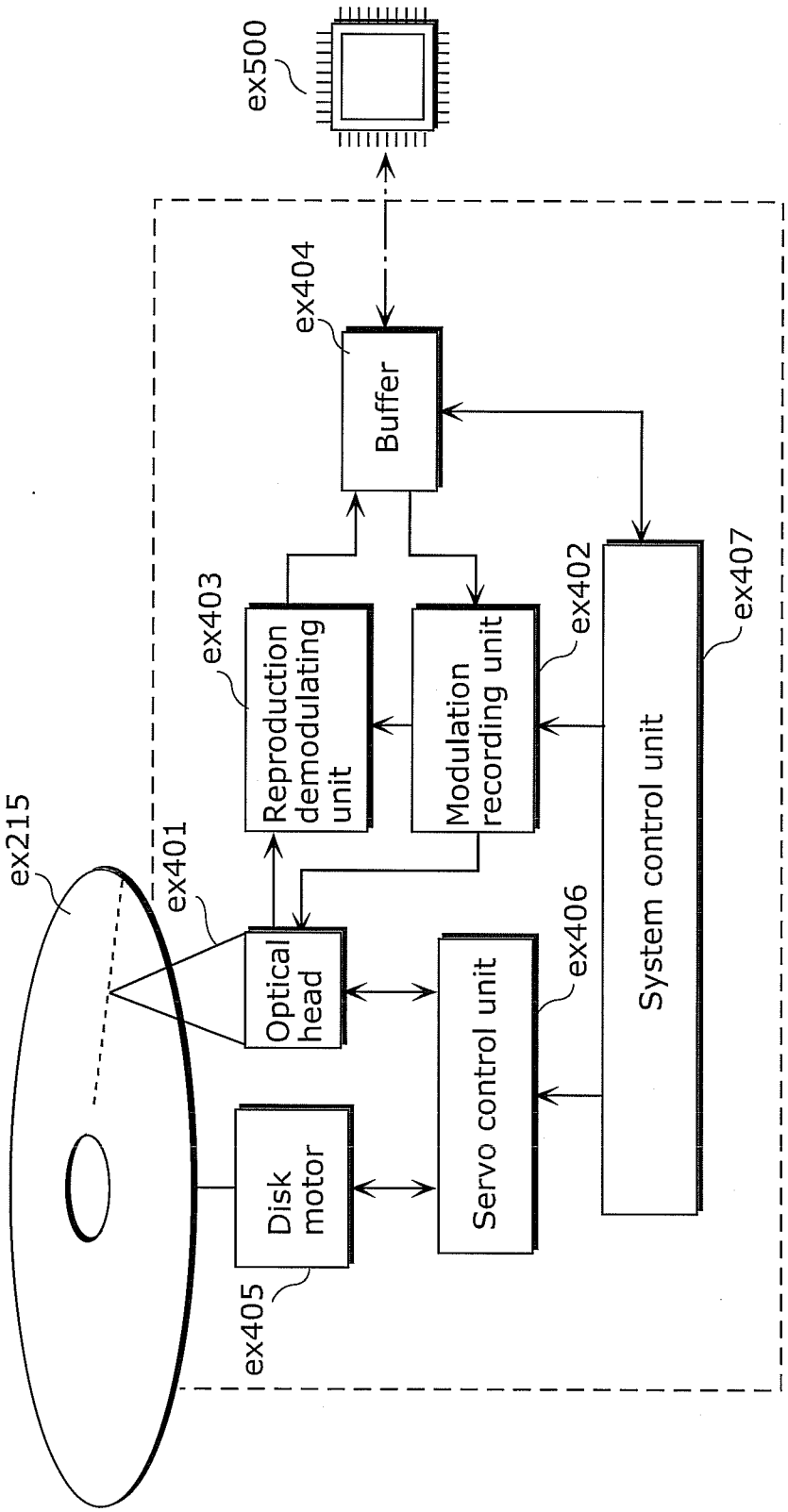

ex500
ex404
Buffer
ex403
Reproduction demodulating unit
ex402
Modulation recording unit
ex407
System control unit
ex215
ex401
Optical head
ex406
Servo control unit
Disk motor
ex405
ex400

FIG. 27

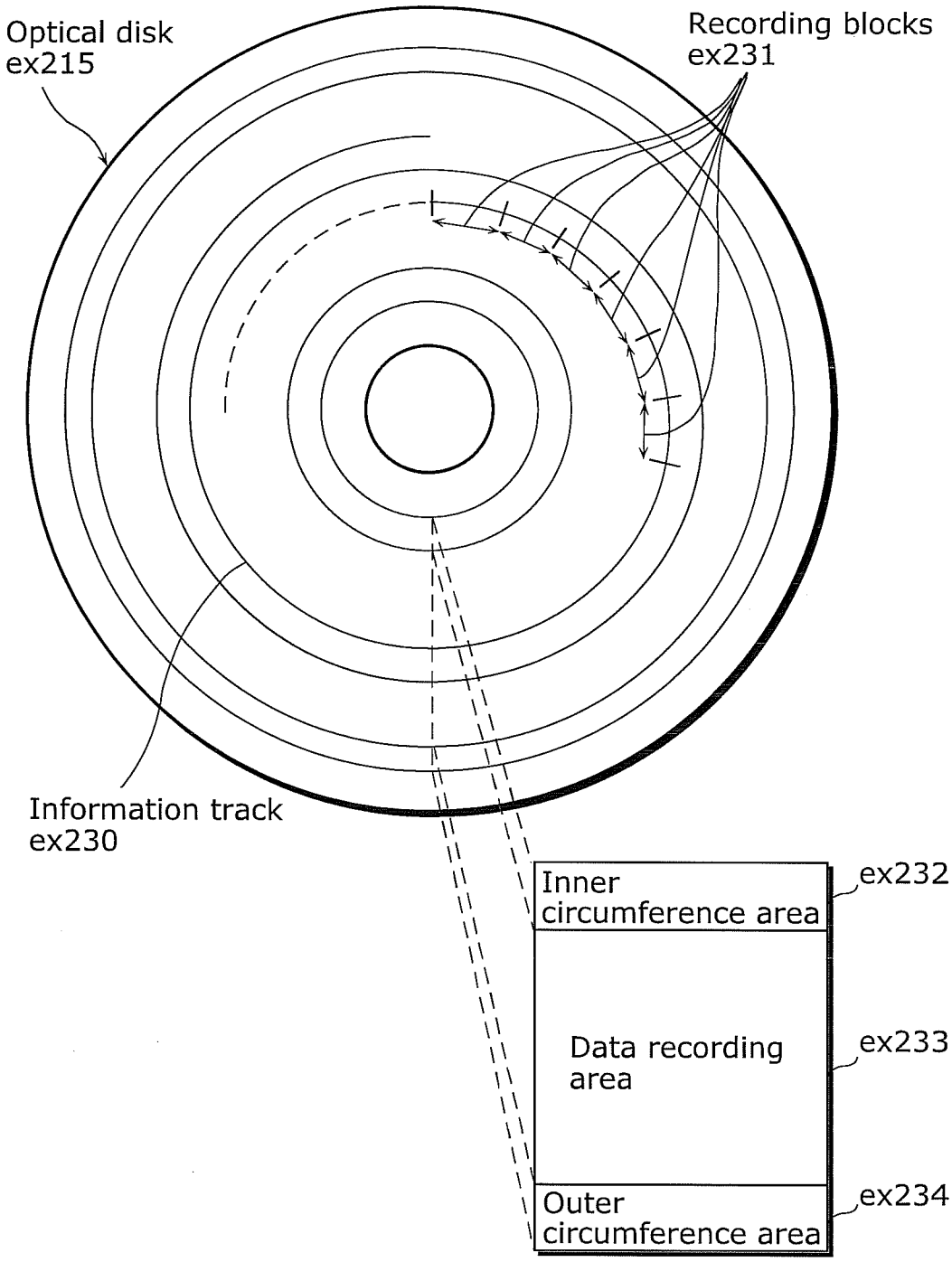

Optical disk
ex215
Recording blocks
ex231
Information track
ex230
Inner
circumference area
ex232
Data recording
area
ex233
Outer
circumference area
ex234

FIG. 28A

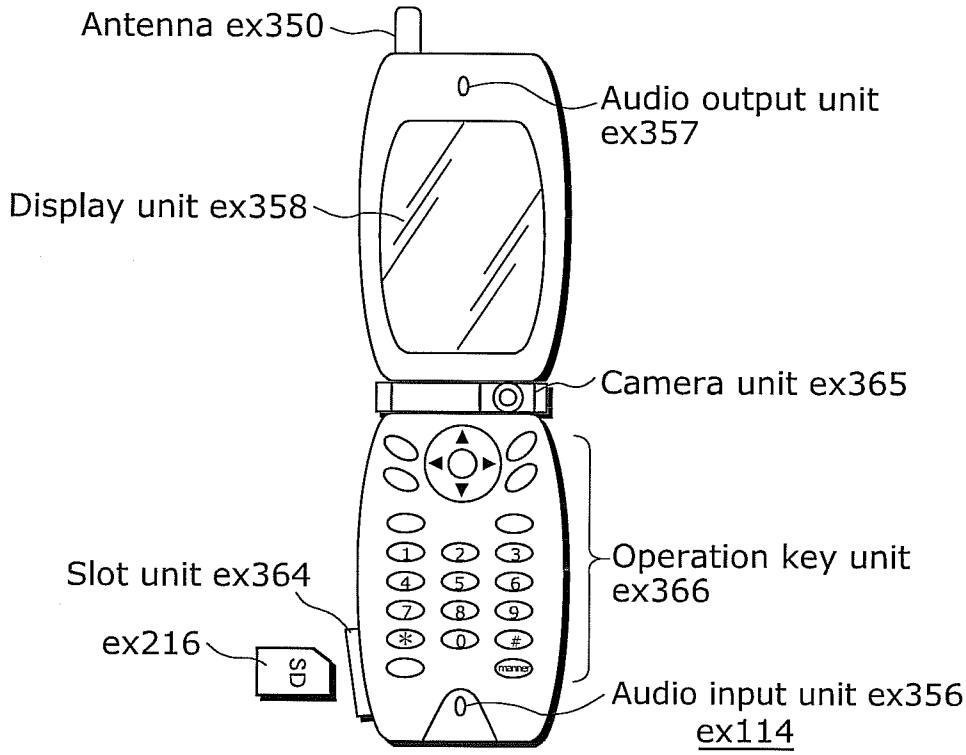



FIG. 28B

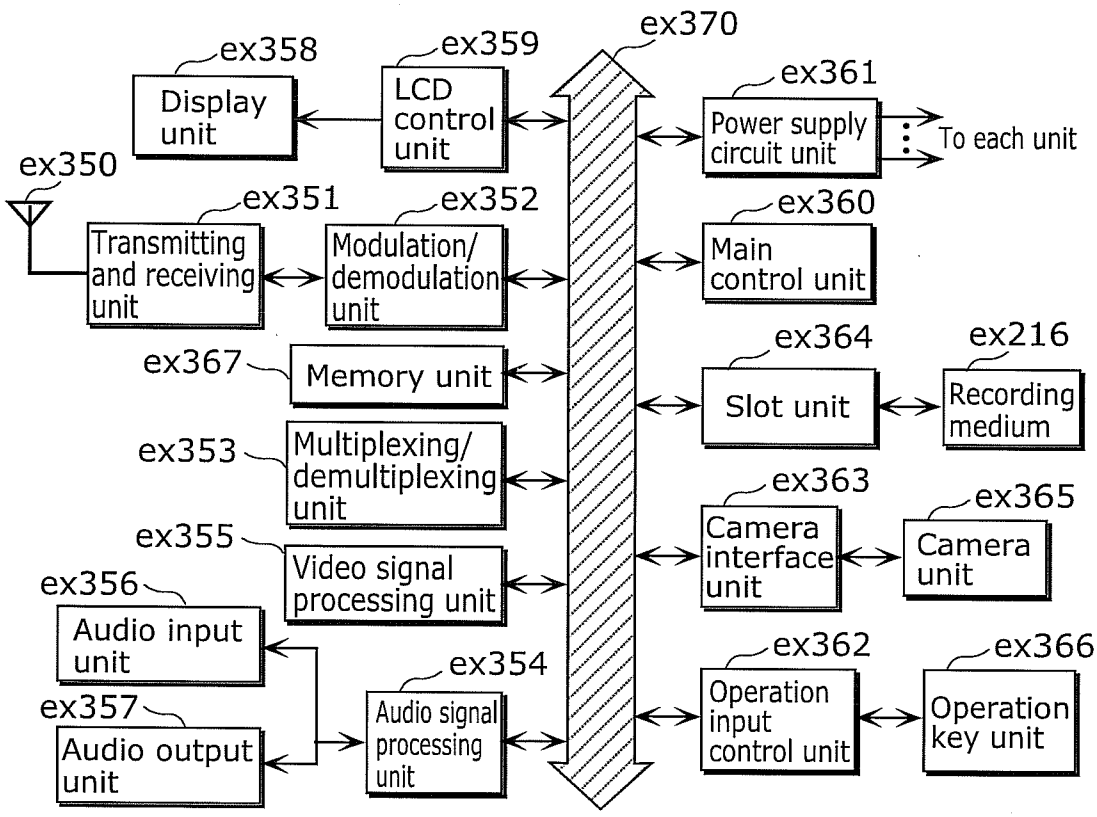


FIG. 29

| |
|---|
| 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. 30

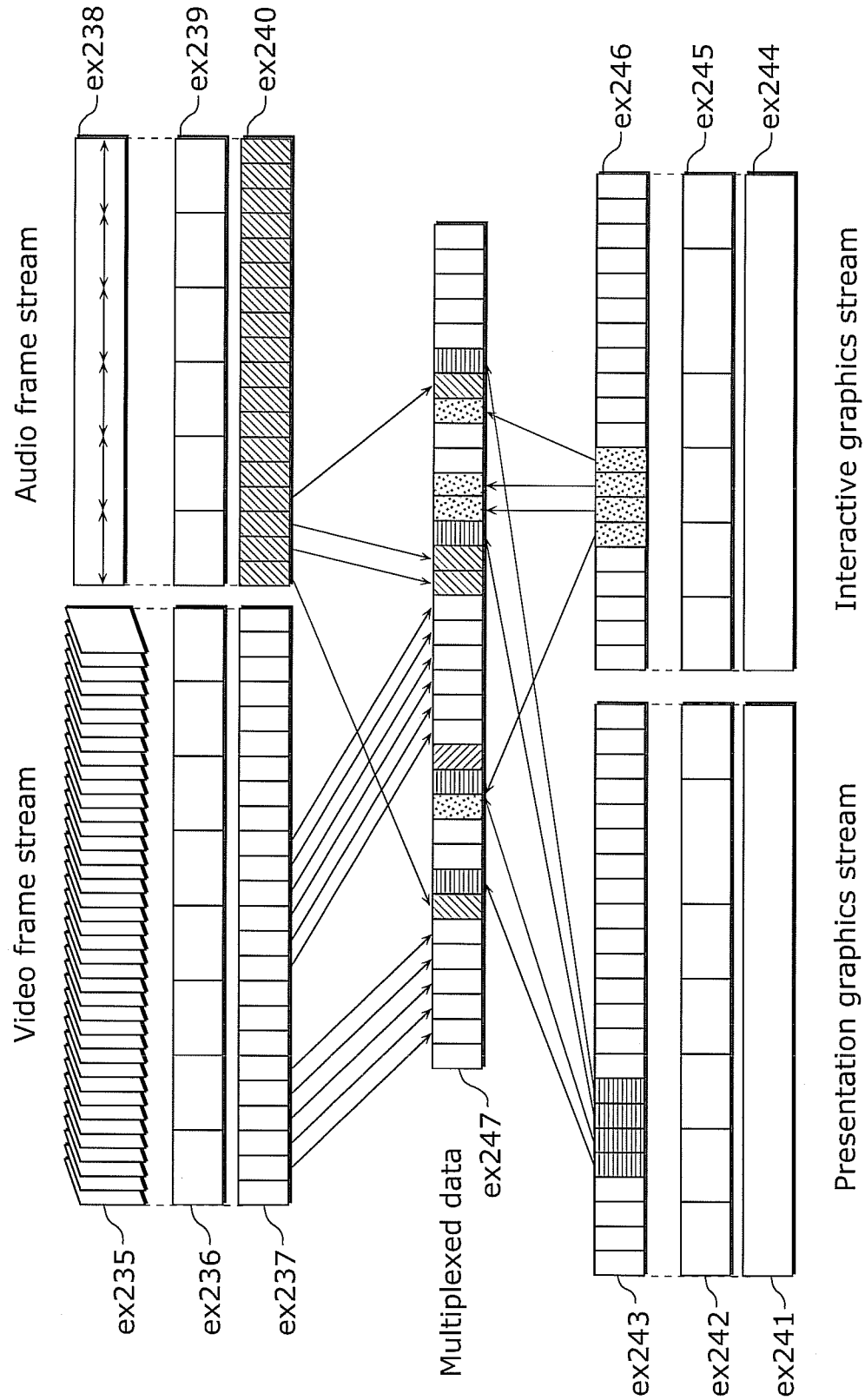

Video frame stream
Audio frame stream
Presentation graphics stream
Interactive graphics stream
Multiplexed data
ex235
ex236
ex237
ex238
ex239
ex240
ex241
ex242
ex243
ex244
ex245
ex246
ex247

FIG. 31

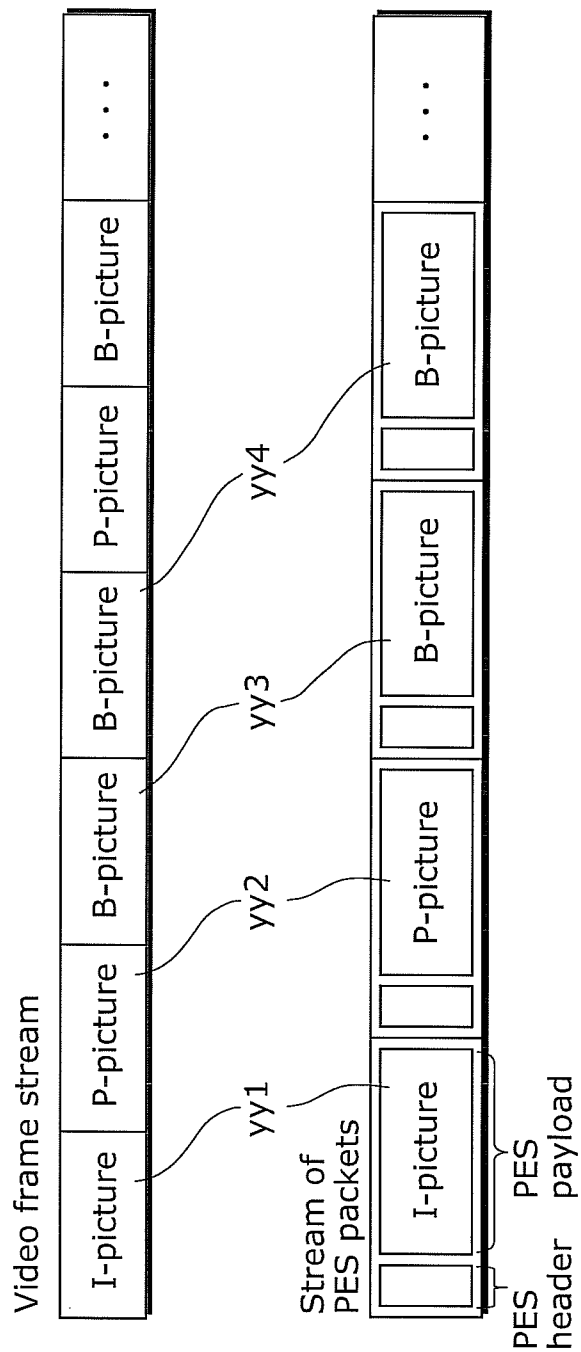

Video frame stream
I-picture
P-picture
B-picture
B-picture
P-picture
B-picture
. . .
yy1
yy2
yy3
yy4
Stream of PES packets
I-picture
P-picture
B-picture
B-picture
. . .
PES header
PES payload

FIG. 32

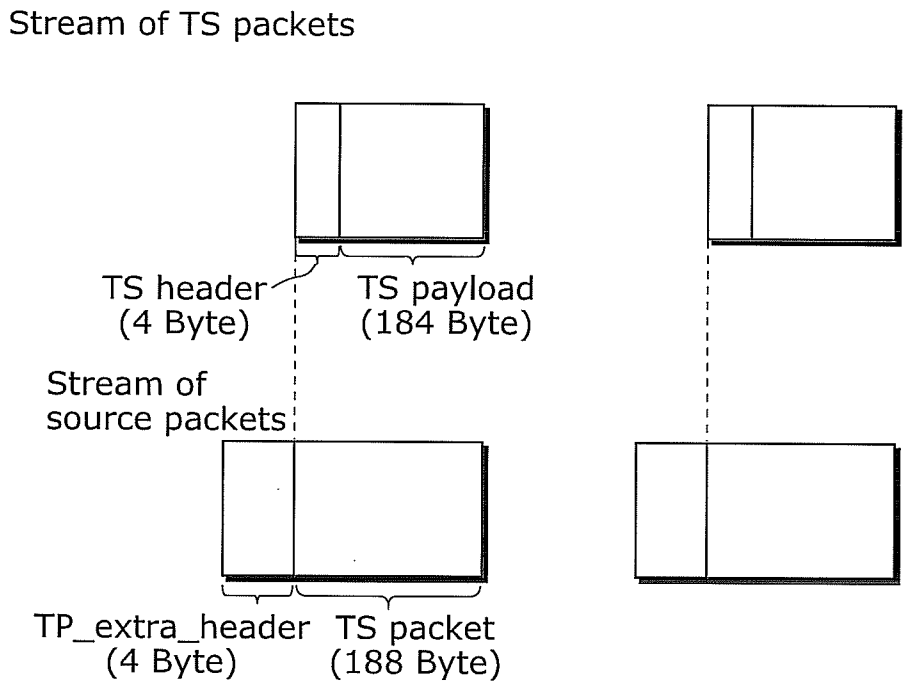

Stream of TS packets
TS header
(4 Byte)
TS payload
(184 Byte)
Stream of
source packets
TP_extra_header
(4 Byte)
TS packet
(188 Byte)
Multiplexed data
SPN 0 1 2 3 4 5 6 7 ...
Source packet

FIG. 33

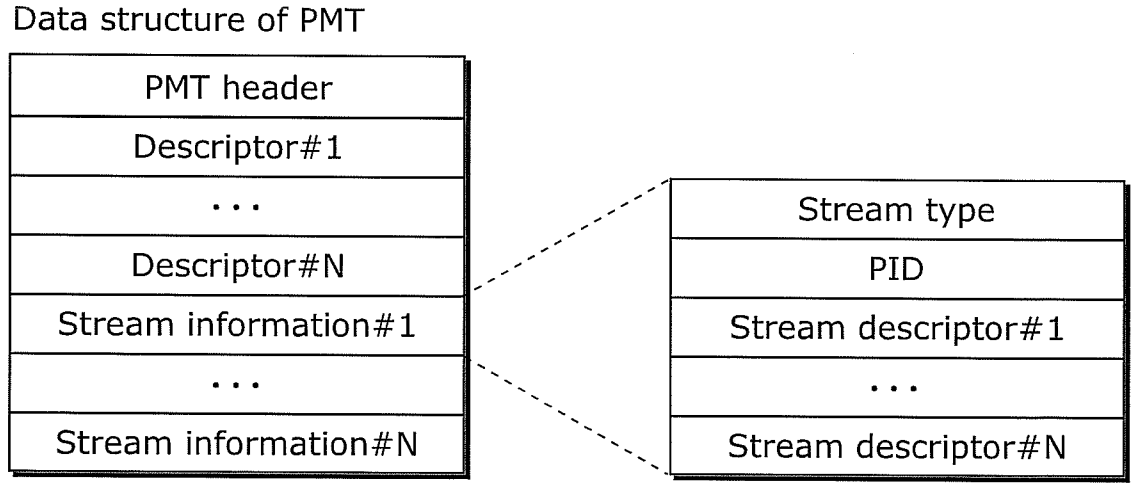

Data structure of PMT
PMT header
Descriptor#1
...
Descriptor#N
Stream information#1
...
Stream information#N
Stream type
PID
Stream descriptor#1
...
Stream descriptor#N

FIG. 34

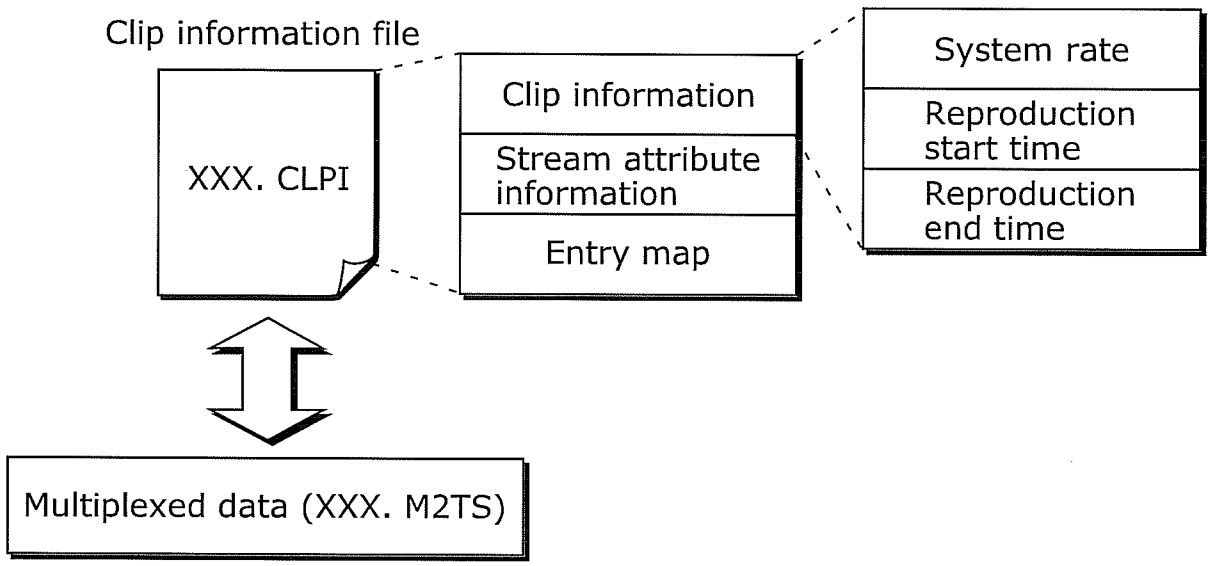

Clip information file
XXX. CLPI
Clip information
Stream attribute information
Entry map
System rate
Reproduction start time
Reproduction end time
Multiplexed data (XXX. M2TS)

FIG. 35

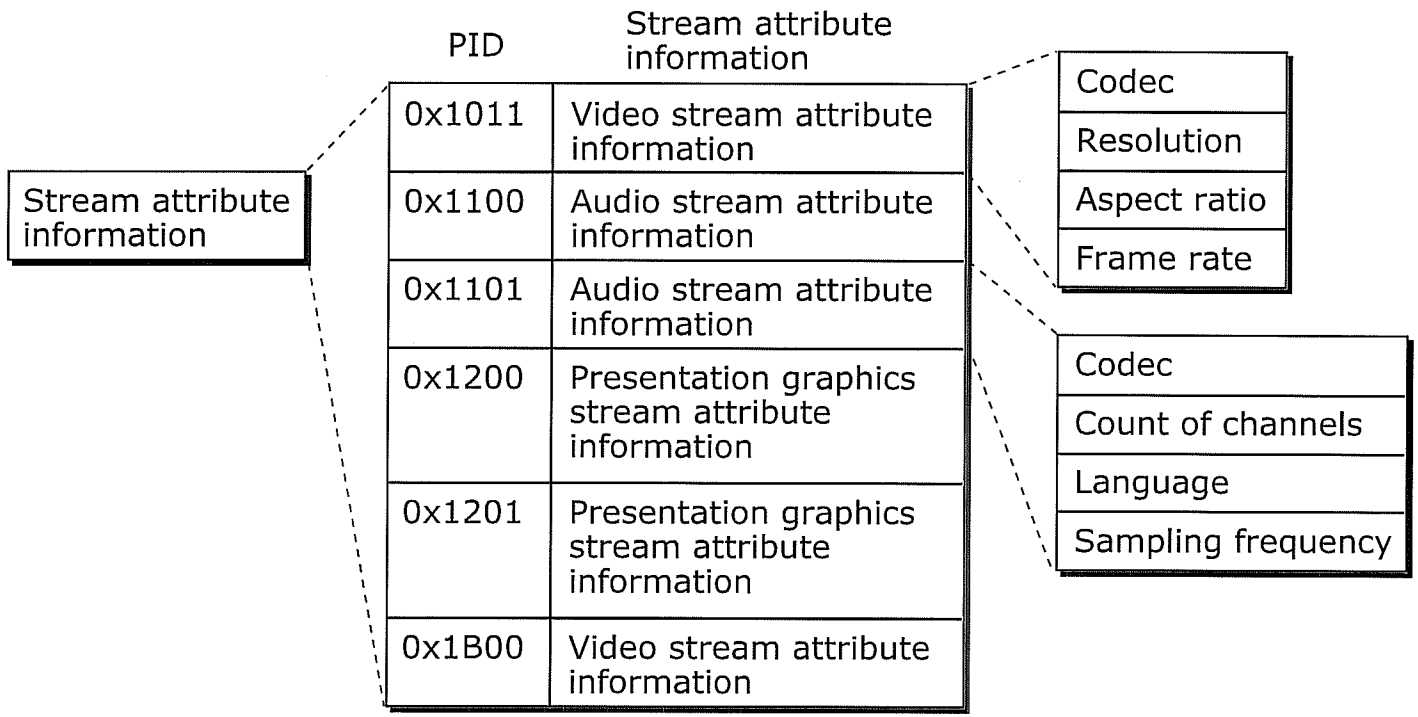

Stream attribute information
PID
Stream attribute information
0x1011
Video stream attribute information
0x1100
Audio stream attribute information
0x1101
Audio stream attribute information
0x1200
Presentation graphics stream attribute information
0x1201
Presentation graphics stream attribute information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

FIG. 36

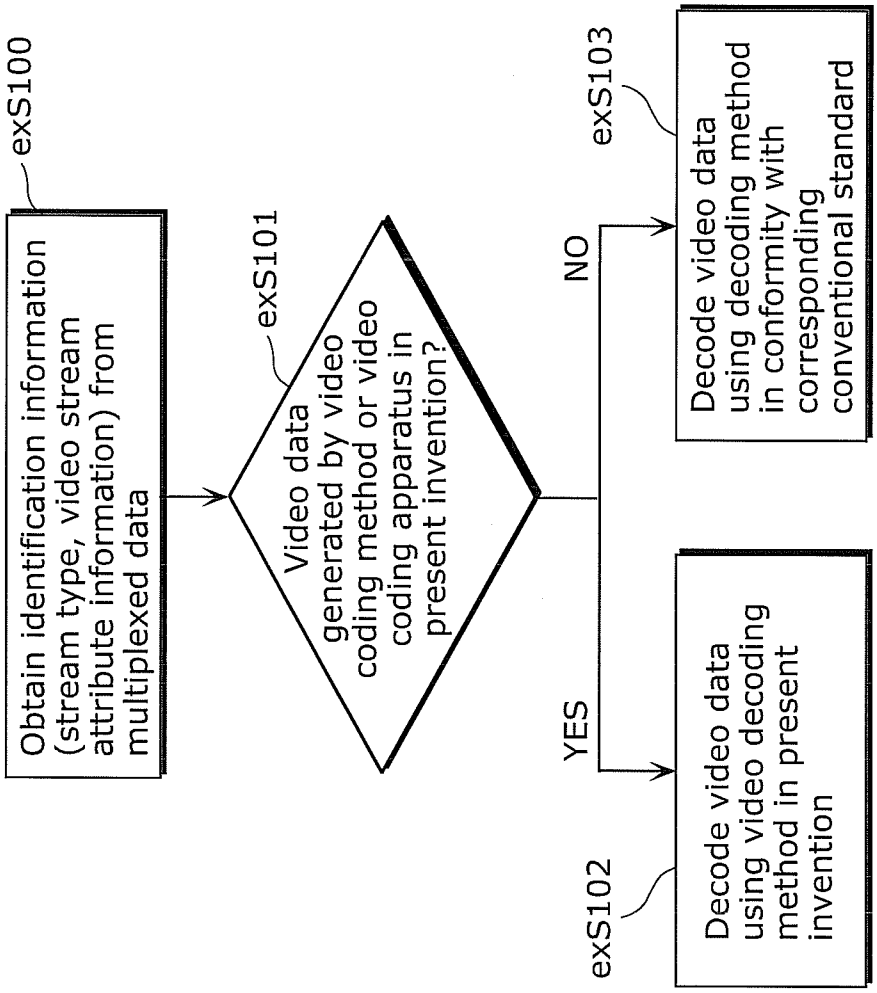

exS100
Obtain identification information (stream type, video stream attribute information) from multiplexed data
exS101
Video data generated by video coding method or video coding apparatus in present invention?
YES
NO
exS102
Decode video data using video decoding method in present invention
exS103
Decode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

FIG. 37

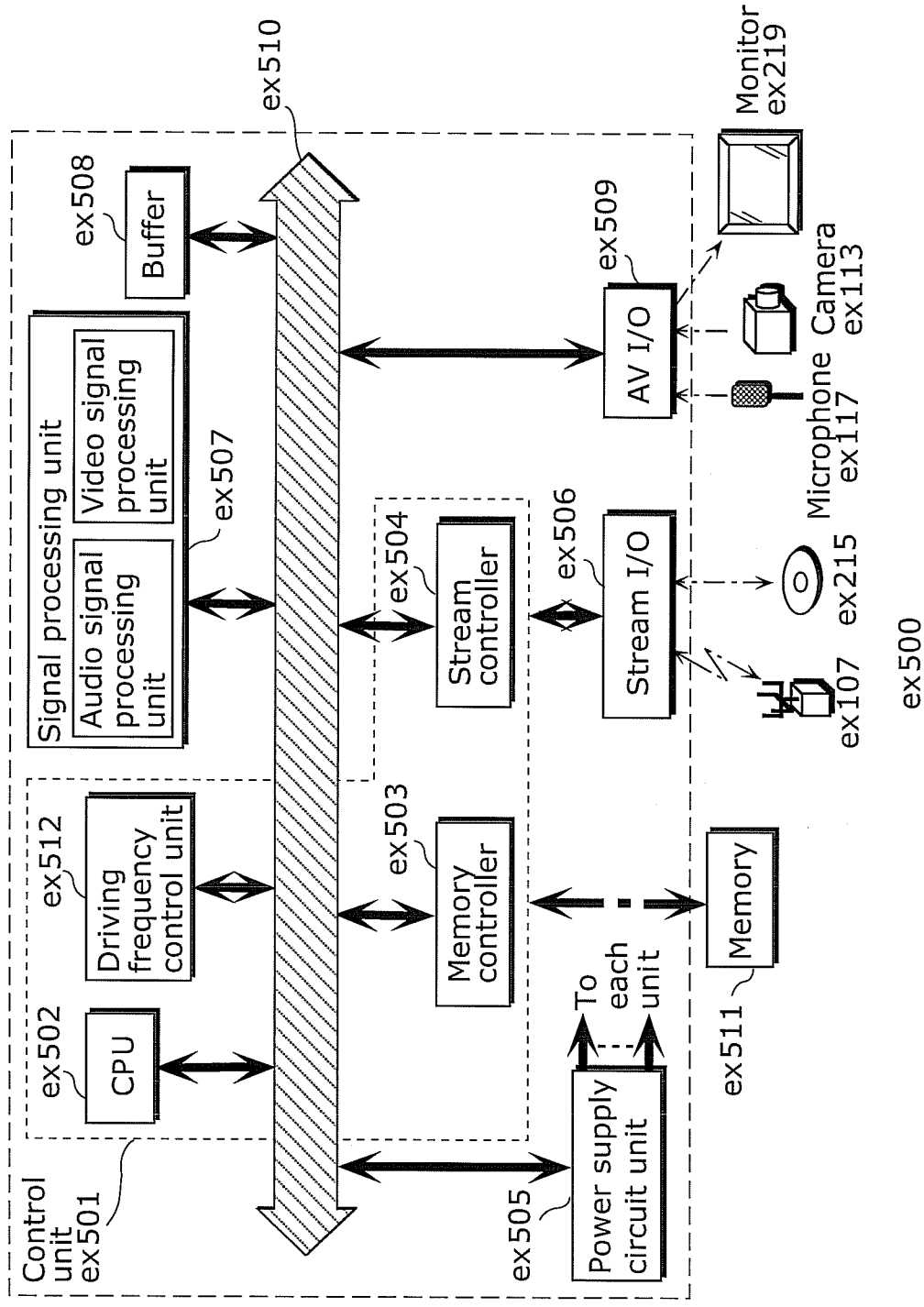

ex500
Control unit ex501
CPU ex502
Driving frequency control unit ex512
Signal processing unit
Audio signal processing unit
Video signal processing unit ex507
Buffer ex508
ex510
Memory controller ex503
Stream controller ex504
Power supply circuit unit ex505
To each unit
Stream I/O ex506
AV I/O ex509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

FIG. 38

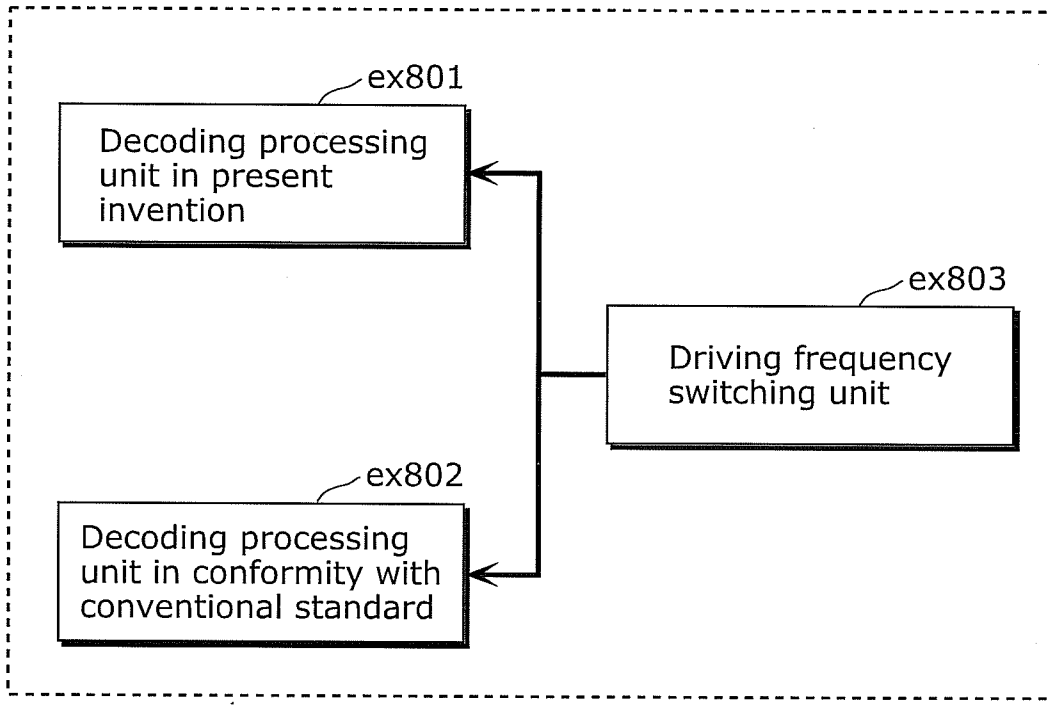

ex801
Decoding processing unit in present invention
ex803
Driving frequency switching unit
ex802
Decoding processing unit in conformity with conventional standard

FIG. 39

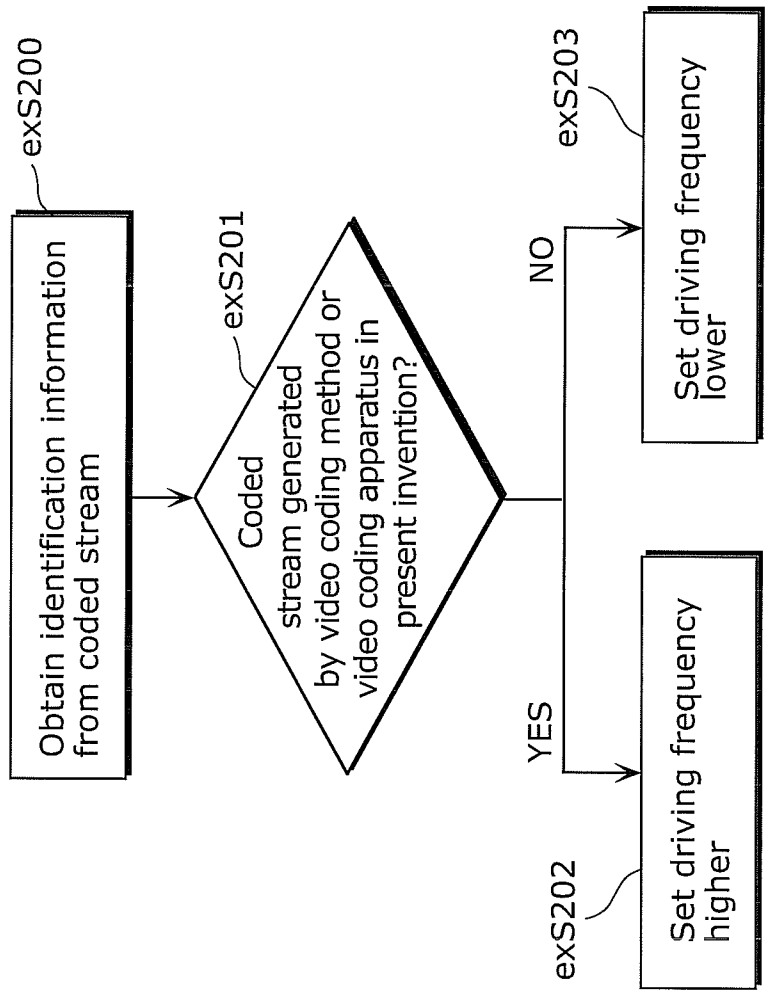

exS200
Obtain identification information from coded stream
exS201
Coded stream generated by video coding method or video coding apparatus in present invention?
NO
exS203
Set driving frequency lower
YES
exS202
Set driving frequency higher

FIG. 40

| Corresponding standard | Driving frequency |
|---|---|
| MPEG4. AVC | 500MHz |
| MPEG2 | 350MHz |
| ⋮ | ⋮ |

FIG. 41A

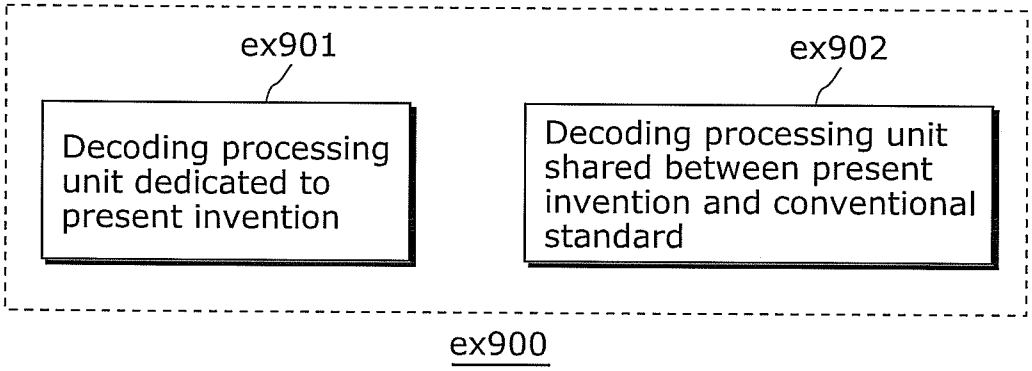



FIG. 41B

