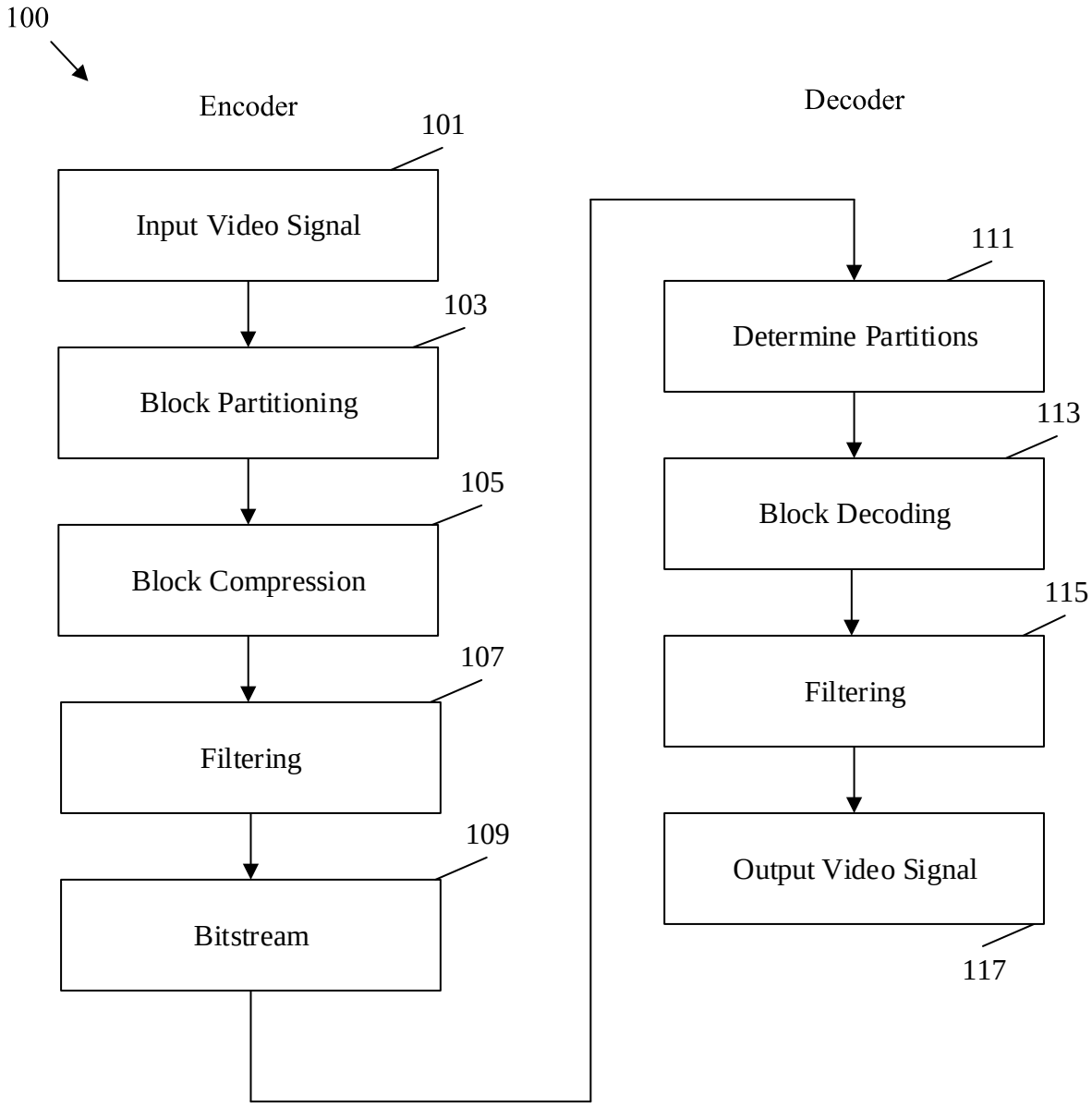
100
Encoder
Decoder
101
Input Video Signal
103
Block Partitioning
105
Block Compression
107
Filtering
109
Bitstream
111
Determine Partitions
113
Block Decoding
115
Filtering
Output Video Signal
117

FIG. 1

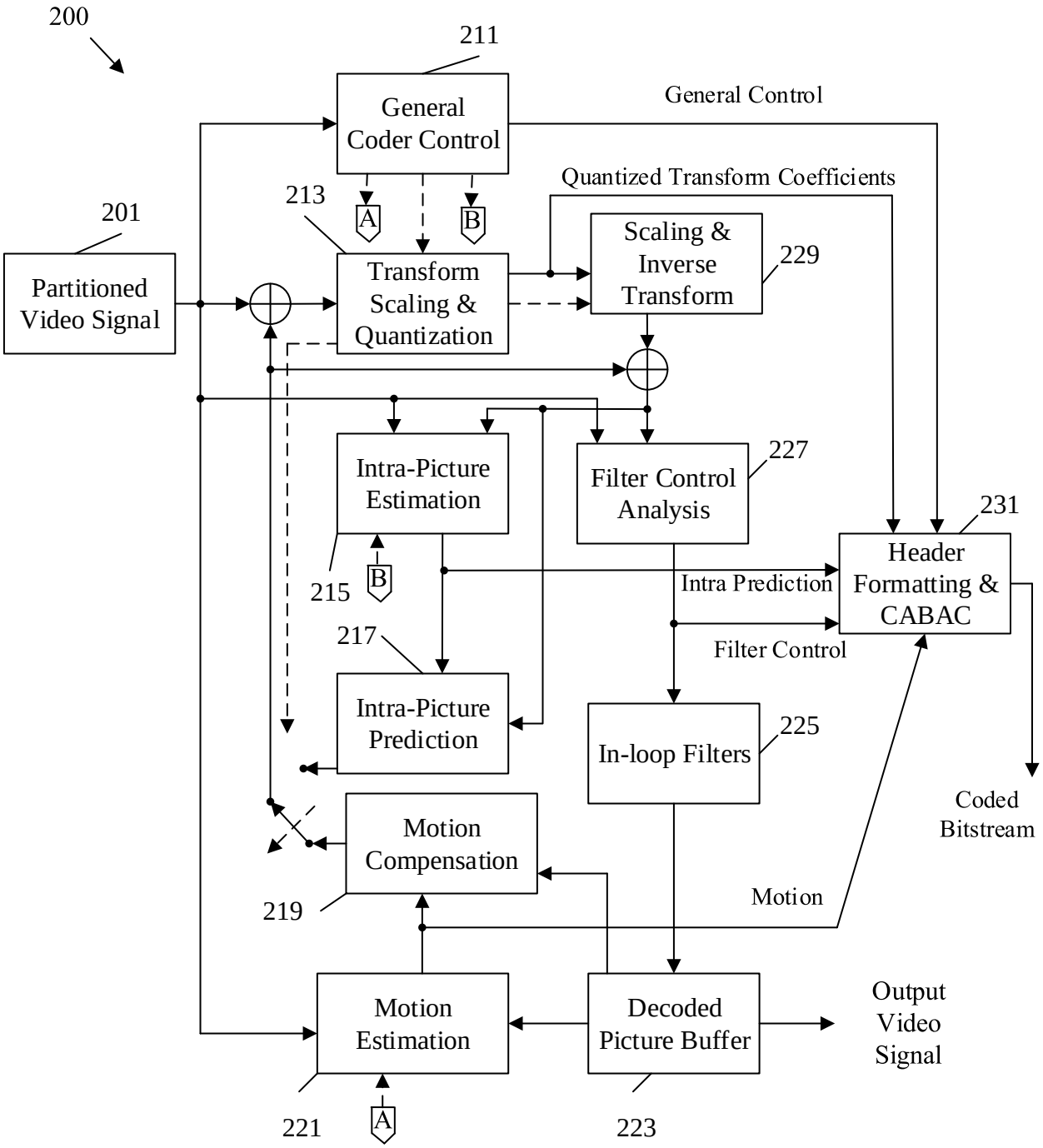
200
211
General Coder Control
General Control
Quantized Transform Coefficients
213
A
B
201
Partitioned Video Signal
Transform Scaling & Quantization
Scaling & Inverse Transform
229
Intra-Picture Estimation
Filter Control Analysis
227
231
Header Formatting & CABAC
215
B
Intra Prediction
Filter Control
217
Intra-Picture Prediction
In-loop Filters
225
Coded Bitstream
Motion Compensation
219
Motion
Motion Estimation
Decoded Picture Buffer
Output Video Signal
221
A
223

FIG. 2

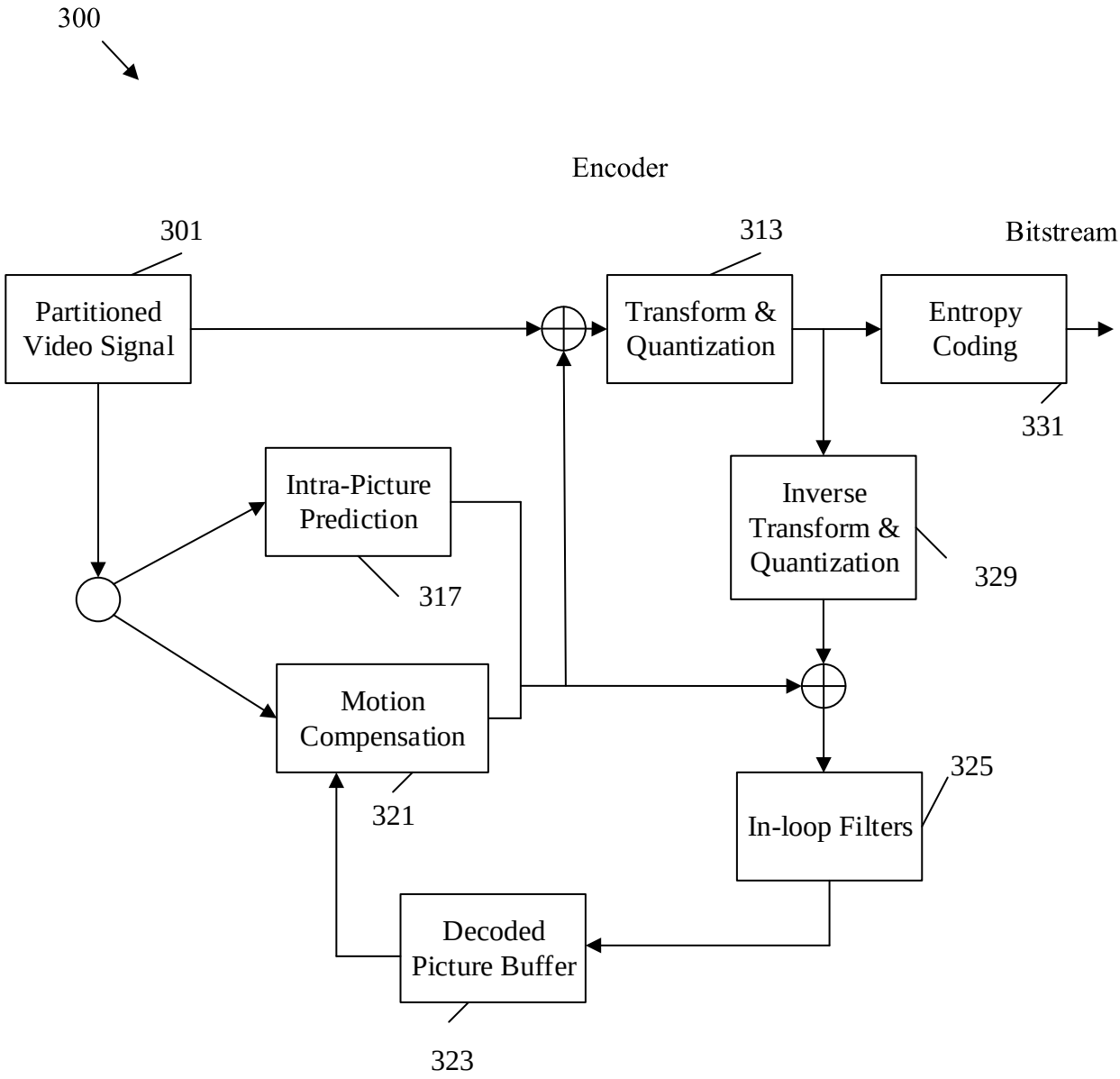
300
Encoder
301
Partitioned Video Signal
313
Transform & Quantization
Entropy Coding
Bitstream
331
Intra-Picture Prediction
317
Inverse Transform & Quantization
329
Motion Compensation
321
325
In-loop Filters
Decoded Picture Buffer
323

FIG. 3

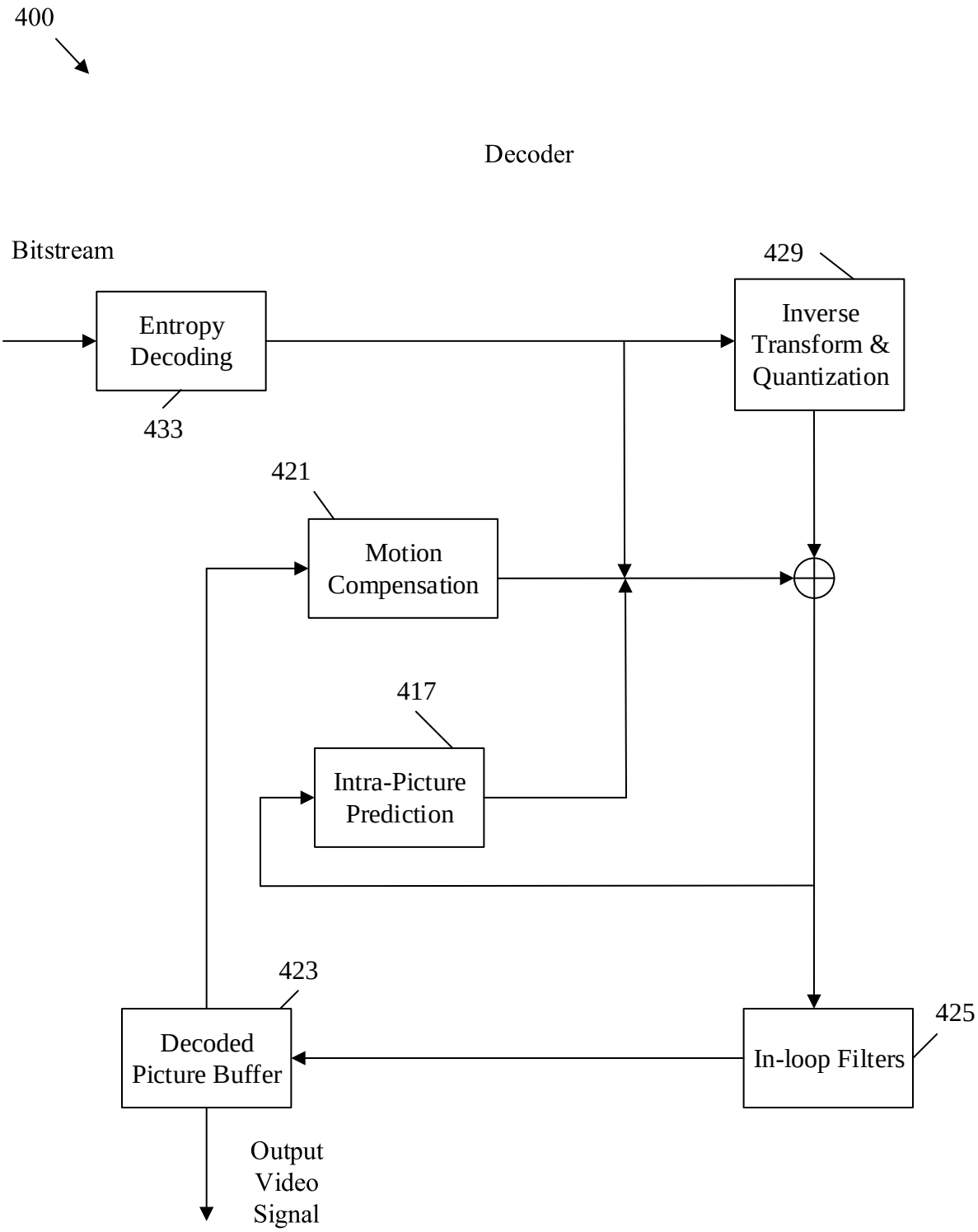
400
Decoder
Bitstream
Entropy Decoding
433
429
Inverse Transform & Quantization
421
Motion Compensation
417
Intra-Picture Prediction
423
Decoded Picture Buffer
425
In-loop Filters
Output Video Signal

FIG. 4

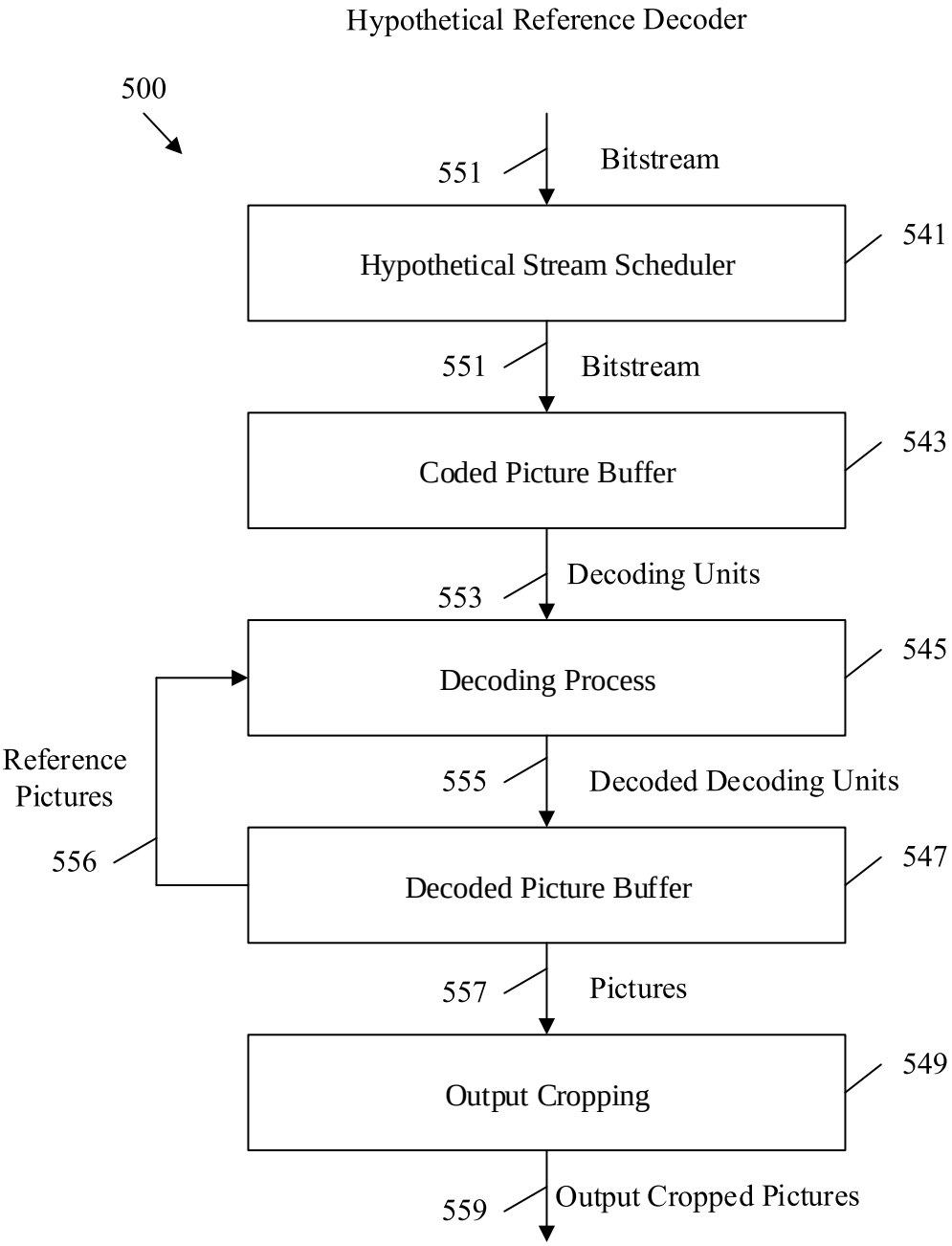
Hypothetical Reference Decoder
500
551
Bitstream
Hypothetical Stream Scheduler
541
551
Bitstream
Coded Picture Buffer
543
553
Decoding Units
Decoding Process
545
Reference Pictures
555
Decoded Decoding Units
556
Decoded Picture Buffer
547
557
Pictures
Output Cropping
549
559
Output Cropped Pictures

FIG. 5

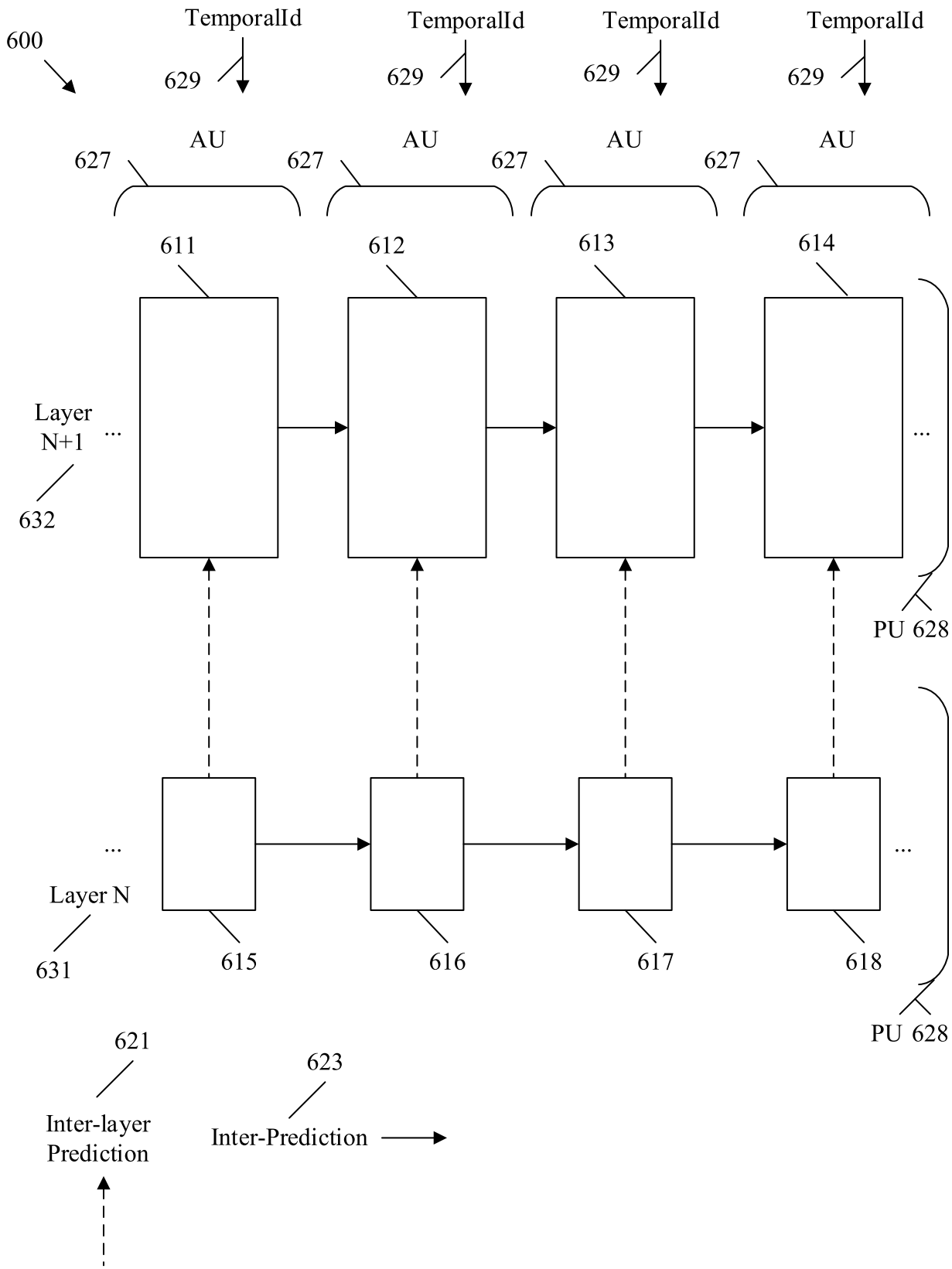
600
TemporalId
629
TemporalId
629
TemporalId
629
TemporalId
629
AU
627
AU
627
AU
627
AU
627
611
612
613
614
Layer N+1
632
...
...
PU 628
...
...
Layer N
631
615
616
617
618
PU 628
621
Inter-layer Prediction
623
Inter-Prediction

FIG. 6

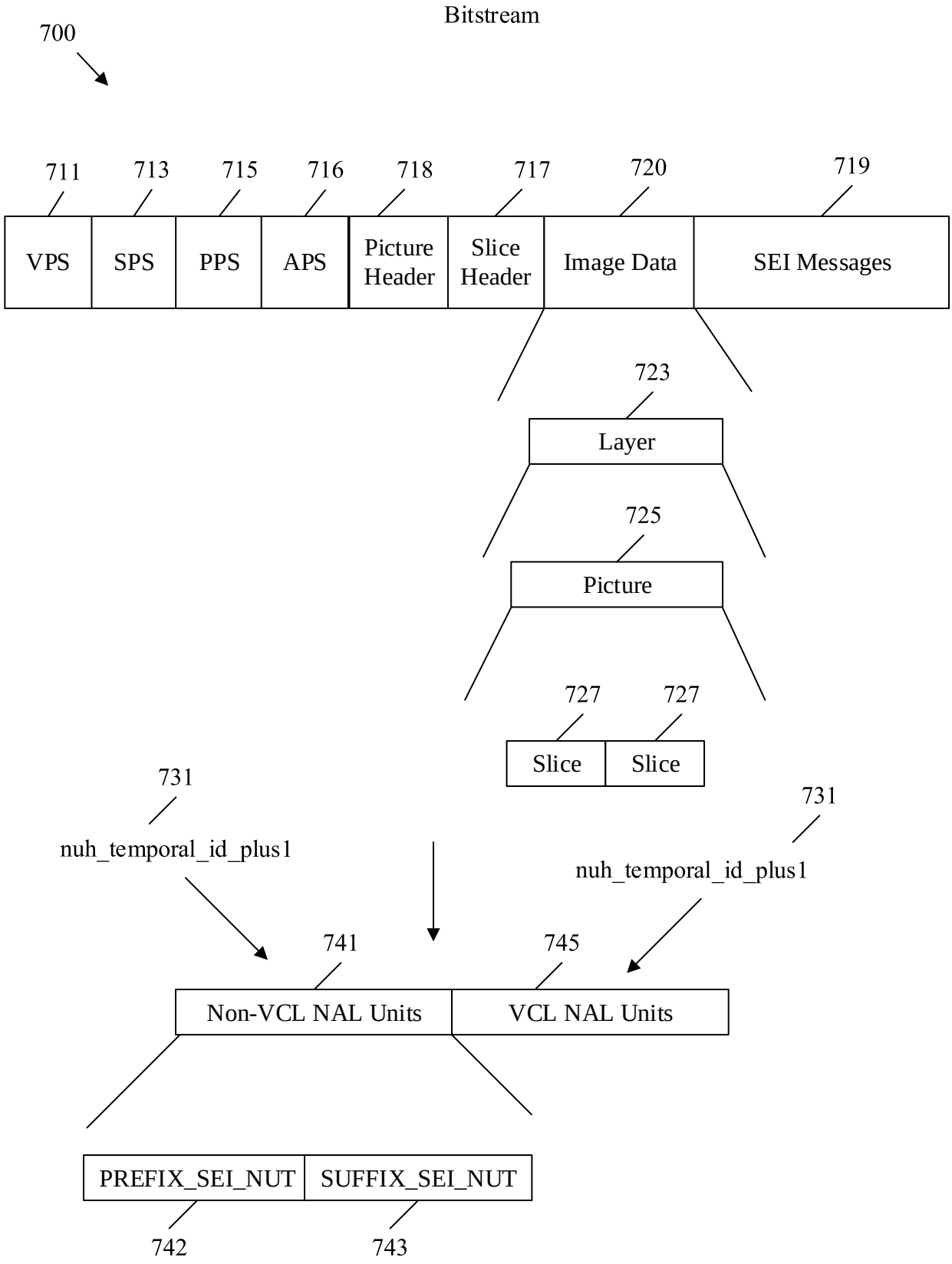
Bitstream
700
711
713
715
716
718
717
720
719
VPS
SPS
PPS
APS
Picture Header
Slice Header
Image Data
SEI Messages
723
Layer
725
Picture
727
727
Slice
Slice
731
nuh_temporal_id_plus1
731
nuh_temporal_id_plus1
741
745
Non-VCL NAL Units
VCL NAL Units
PREFIX_SEI_NUT
SUFFIX_SEI_NUT
742
743

FIG. 7

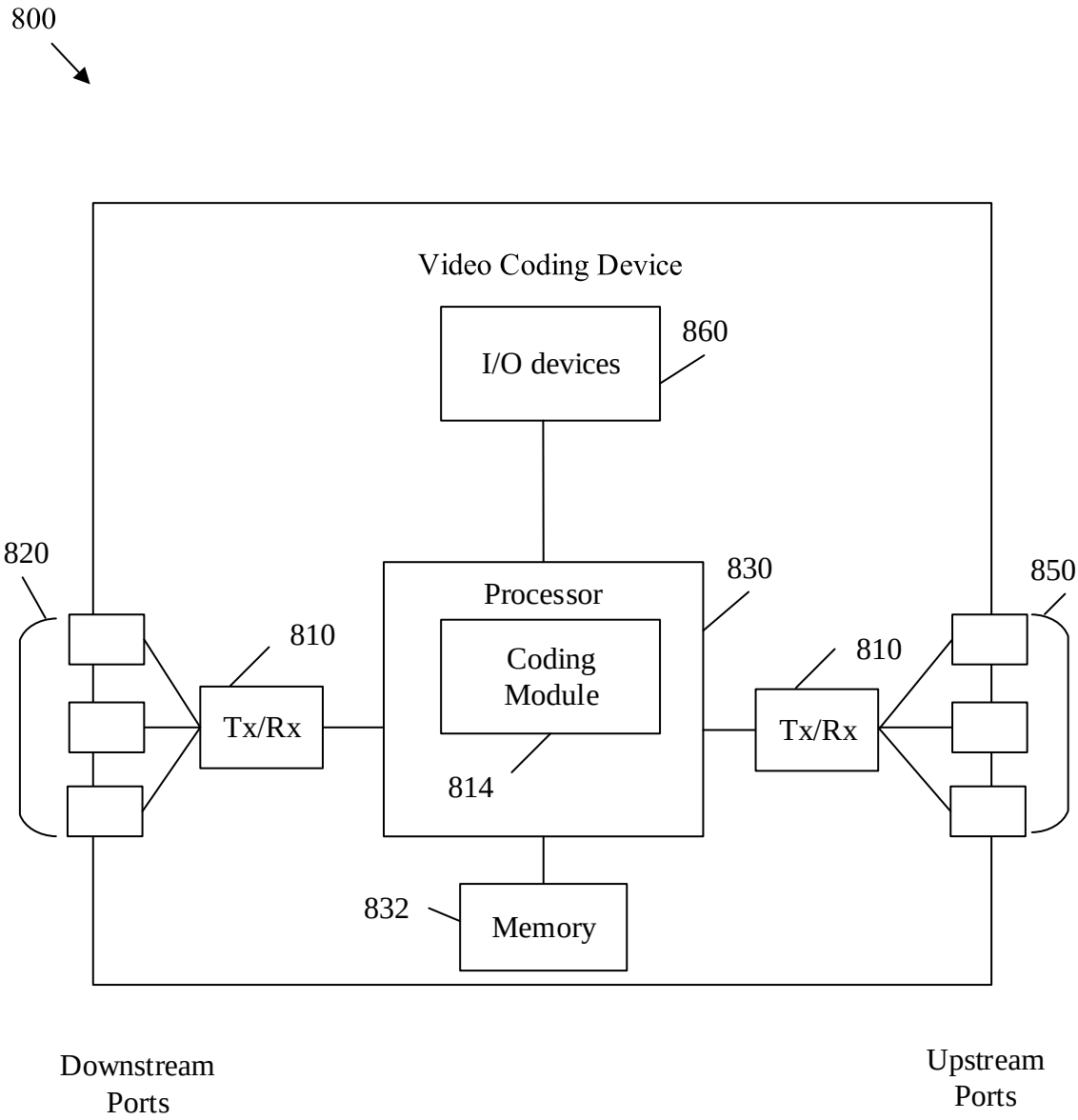
800
Video Coding Device
I/O devices
860
820
830
850
Processor
810
Coding
Module
810
Tx/Rx
Tx/Rx
814
832
Memory
Downstream
Ports
Upstream
Ports

FIG. 8

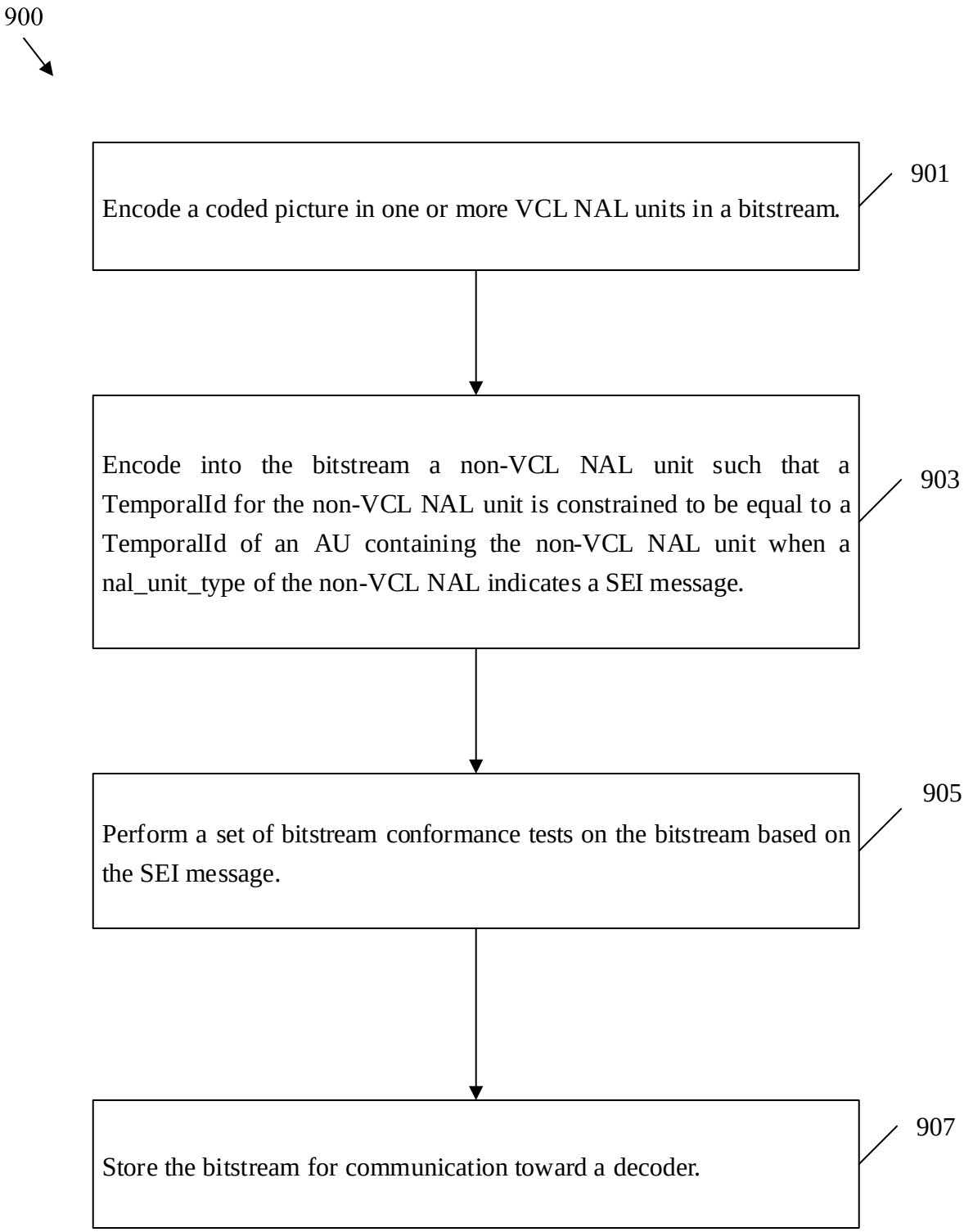
900
Encode a coded picture in one or more VCL NAL units in a bitstream.
901
Encode into the bitstream a non-VCL NAL unit such that a TemporalId for the non-VCL NAL unit is constrained to be equal to a TemporalId of an AU containing the non-VCL NAL unit when a nal_unit_type of the non-VCL NAL indicates a SEI message.
903
Perform a set of bitstream conformance tests on the bitstream based on the SEI message.
905
Store the bitstream for communication toward a decoder.
907

FIG. 9

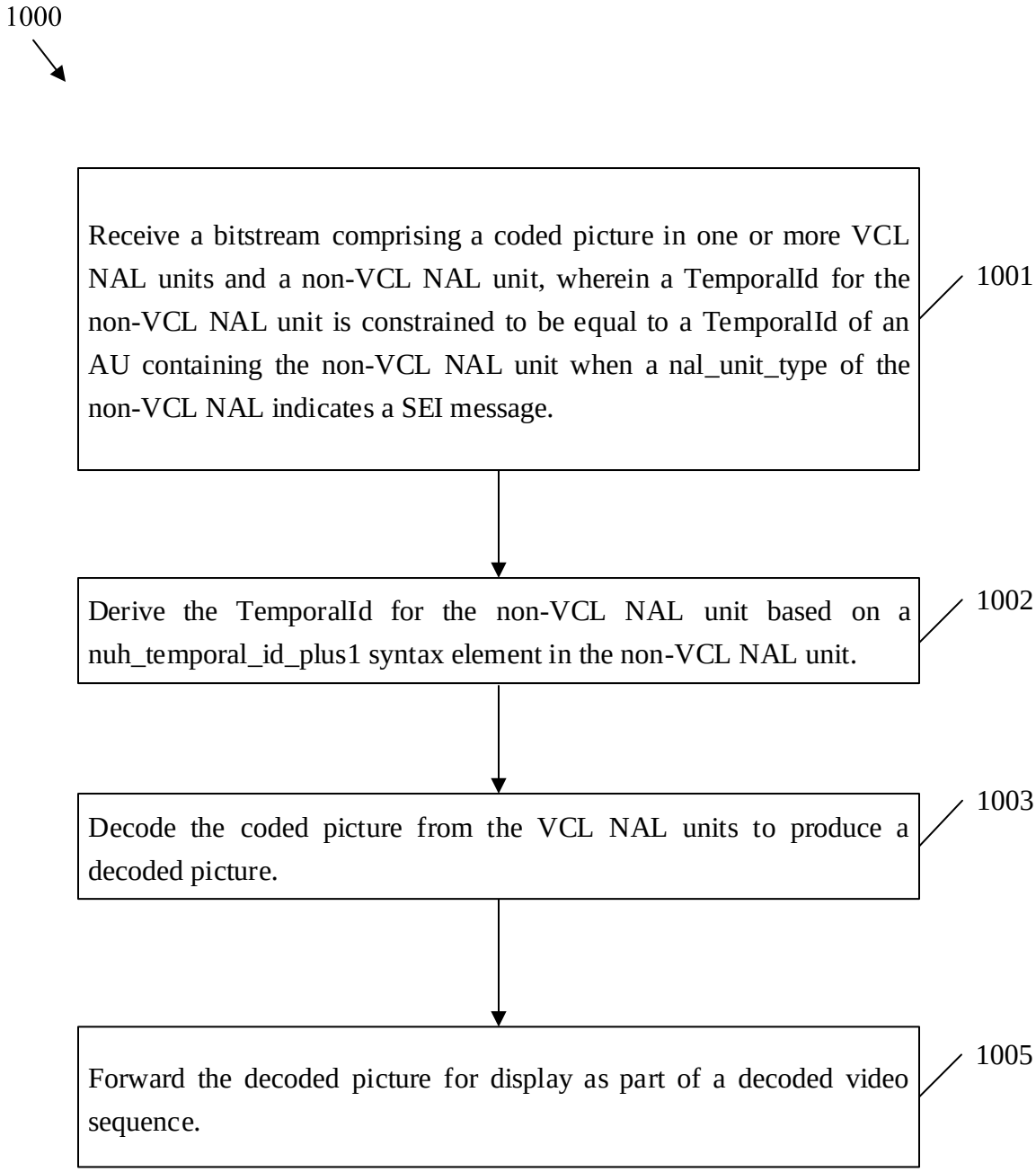
1000
Receive a bitstream comprising a coded picture in one or more VCL NAL units and a non-VCL NAL unit, wherein a TemporalId for the non-VCL NAL unit is constrained to be equal to a TemporalId of an AU containing the non-VCL NAL unit when a nal_unit_type of the non-VCL NAL indicates a SEI message.
1001
Derive the TemporalId for the non-VCL NAL unit based on a nuh_temporal_id_plus1 syntax element in the non-VCL NAL unit.
1002
Decode the coded picture from the VCL NAL units to produce a decoded picture.
1003
Forward the decoded picture for display as part of a decoded video sequence.
1005

FIG. 10

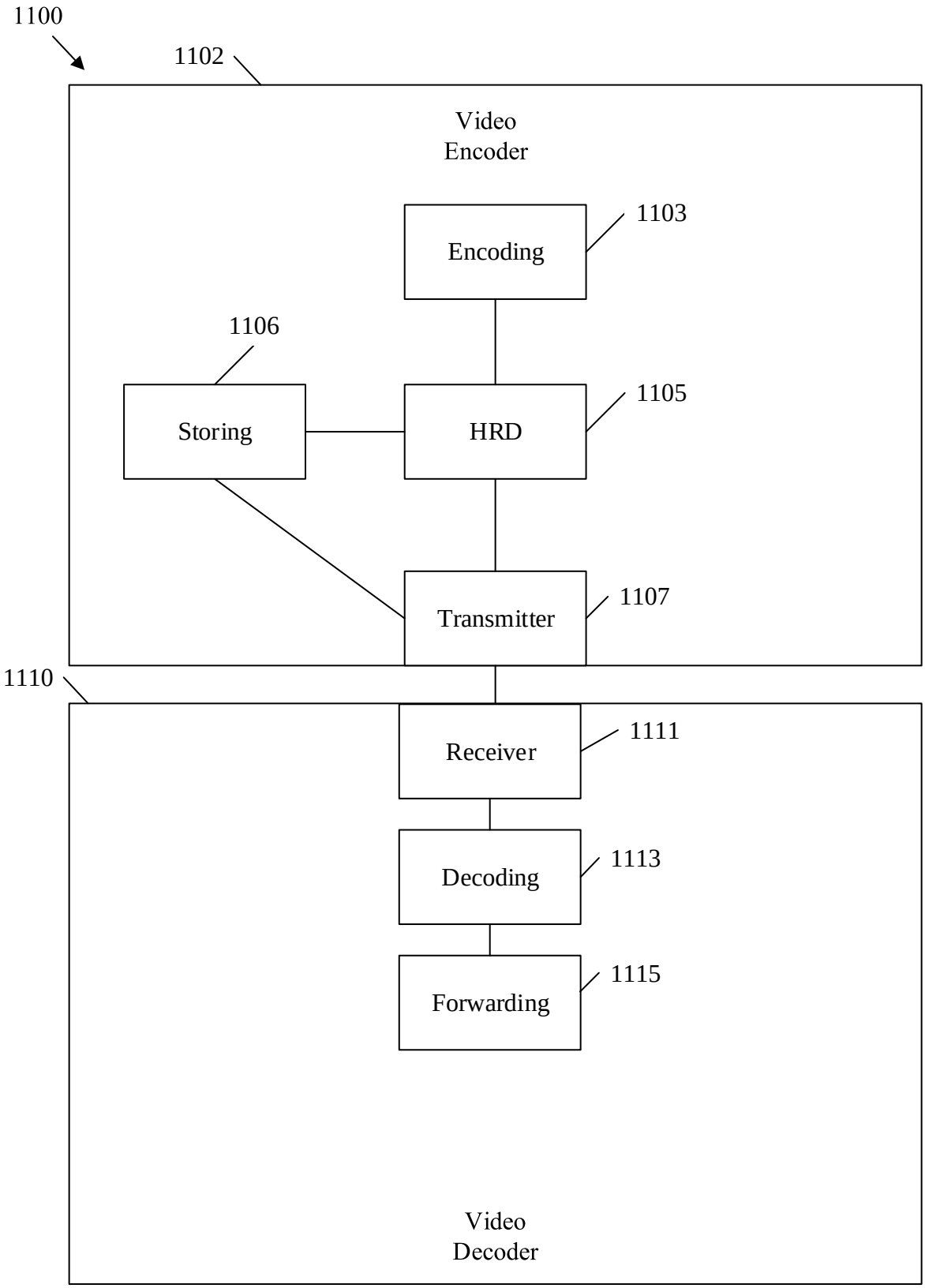
1100
1102
Video
Encoder
Encoding
1103
1106
Storing
HRD
1105
Transmitter
1107
1110
Receiver
1111
Decoding
1113
Forwarding
1115
Video
Decoder

FIG. 11