FIG. 1

METHOD 1	IN CASE WHERE PREDETERMINED CONDITION IS SATISFIED, PICTURE TYPE OF ALL PICTURES IS LIMITED TO I-PICTURE
METHOD 1-1	NAL UNIT TYPE OF ALL VCL NAL UNITS AS DECODING TARGET PICTURE IS LIMITED TO "VALUE INDICATING IRAP"
METHOD 1-2	IN CASE OF INTRA PROFILE, PICTURE TYPE OF ALL PICTURES IS LIMITED TO I-PICTURE
METHOD 1-3	IN CASE WHERE CONTROL FLAG IS TRUE, PICTURE TYPE OF ALL PICTURES IS LIMITED TO I-PICTURE

FIG. 2

In bitstreams conforming to the Main 12 Intra, Main 12 4:4:4 Intra, or Main 16 4:4:4 Intra profiles, the values of nal_unit_type of VCL NAL units for the current picture shall be in the range of IDR_W_RADL to CRA_NUT, inclusive.

FIG. 3

7.3.1.1 General NAL unit syntax

nal_unit(NumBytesInNalUnit){	Descriptor
nal_unit_header( )	
NumBytesInRbsp = 0	
for(i=2; i<NumBytesInNalUnit; i++)	
if(i+2<NumBytesInNalUnit && next_bits(24) == 0x000003){	
rbsp_byte[NumBytesInRbsp++]	b(8)
rbsp_byte[NumBytesInRbsp++]	b(8)
i += 2	
emulation_prevention_three_byte /* equal to 0x03 */	f(8)
} else	
rbsp_byte[NumBytesInRbsp++]	b(8)
}	

7.3.1.2 NAL unit header syntax

nal_unit_header( ){	Descriptor
forbidden_zero_bit	f(1)
nuh_reserved_zero_bit	u(1)
nuh_layer_id	u(6)
nal_unit_type	u(5)
nuh_temporal_id_plus1	u(3)
}	

FIG. 4

A3.5 Format range extensions profiles
The following profiles, collectively referred to as the format range extensions profiles, are specified in this subclause:
・The Main 12, Main 12 4:4:4 and Main 16 4:4:4 profiles
・The Main 12 Intra, Main 12 4:4:4 Intra and Main 16 4:4:4 Intra profiles
・The Main 12 Still Picture, Main 12 4:4:4 Still Picture and Main 16 4:4:4 Still Picture profiles

Bitstreams conforming to the format range extensions profiles shall obey the following constraints:
・Referenced SPSs shall have ptl_multilayer_enabled_flag equal to 0.
・In bitstreams conforming to the Main 12 Still Picture, Main 12 4:4:4 Still Picture and Main 16 4:4:4 Still Picture profiles, the bitstream shall contain only one picture.
・In bitstreams conforming to the Main 12, Main 12 4:4:4, Main 16 4:4:4, Main 12 Intra, Main 12 4:4:4 Intra, or Main 16 4:4:4 Intra profiles, general_level_idc for all values of i in active SPSs shall not be equal to 255 (which indicates level 15.5).
・The tier and level constraints specified for the Main 12, Main 12 4:4:4, Main 16 4:4:4, Main 12 Intra, Main 12 4:4:4 Intra or Main 16 4:4:4 Intra profiles in subclause A.4, as applicable, shall be fulfilled.

・In bitstreams conforming to the Main 12 Intra, Main 12 4:4:4 Intra, or Main 16 4:4:4 Intra profiles, the values of nal_unit_type of VCL NAL units for the current picture shall be in the range of IDR_W_RADL to CRA_NUT, inclusive.

FIG. 5

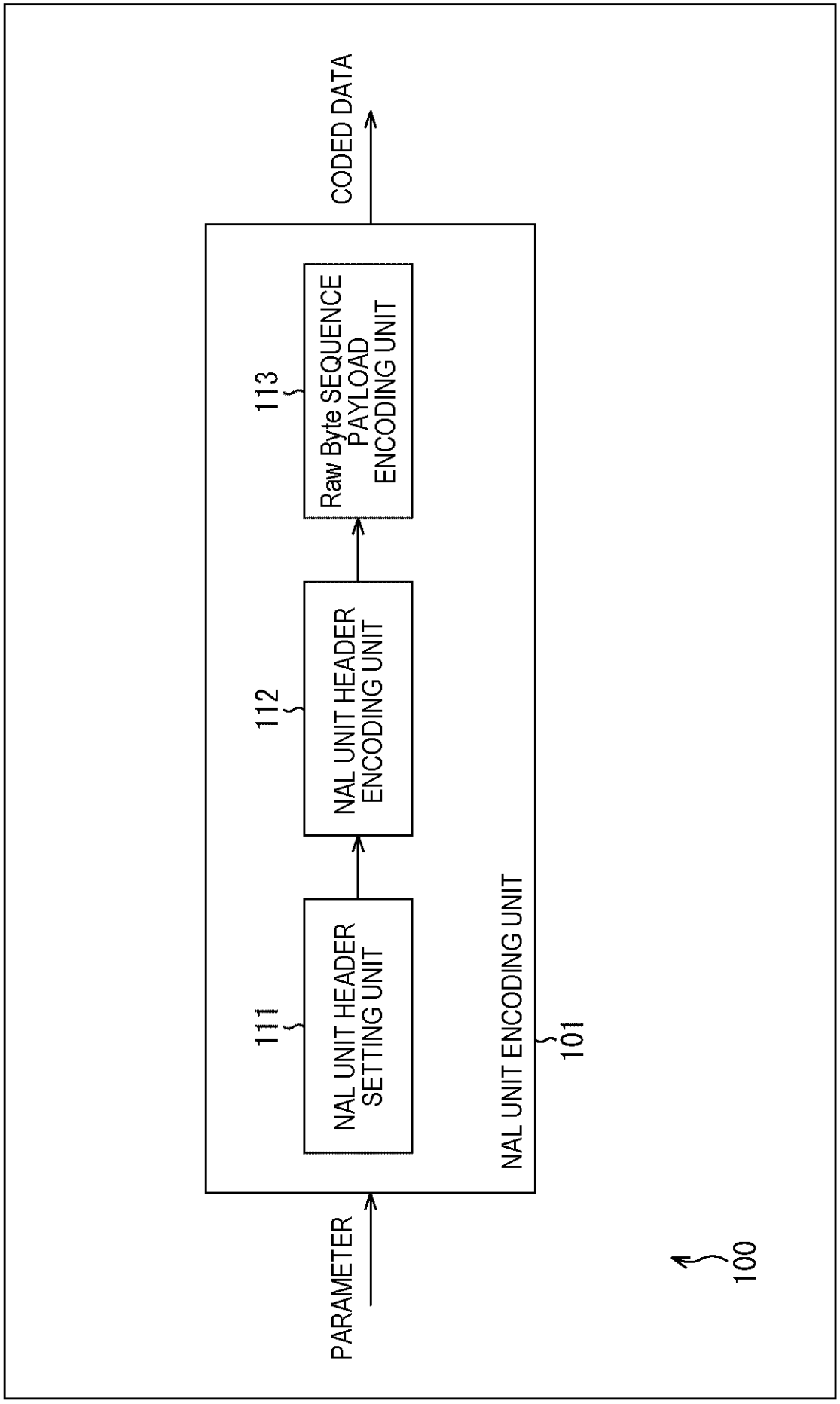

100
PARAMETER
NAL UNIT ENCODING UNIT
101
111
NAL UNIT HEADER SETTING UNIT
112
NAL UNIT HEADER ENCODING UNIT
113
Raw Byte SEQUENCE PAYLOAD ENCODING UNIT
CODED DATA

FIG. 6

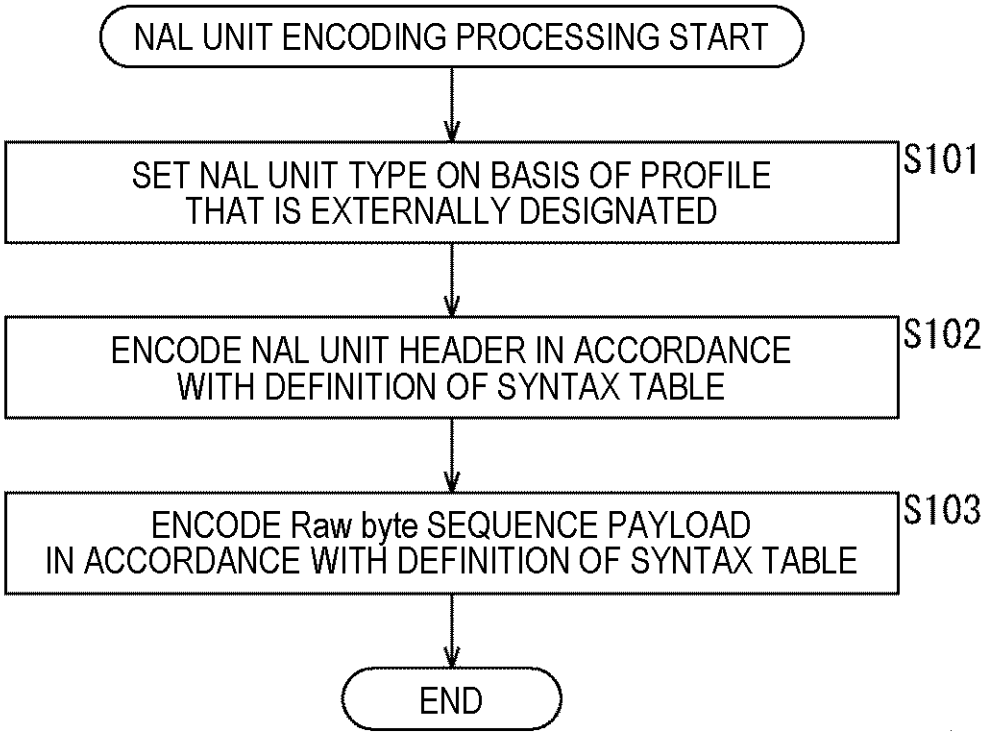

NAL UNIT ENCODING PROCESSING START
SET NAL UNIT TYPE ON BASIS OF PROFILE THAT IS EXTERNALLY DESIGNATED
S101
ENCODE NAL UNIT HEADER IN ACCORDANCE WITH DEFINITION OF SYNTAX TABLE
S102
ENCODE Raw byte SEQUENCE PAYLOAD IN ACCORDANCE WITH DEFINITION OF SYNTAX TABLE
S103
END

FIG. 7

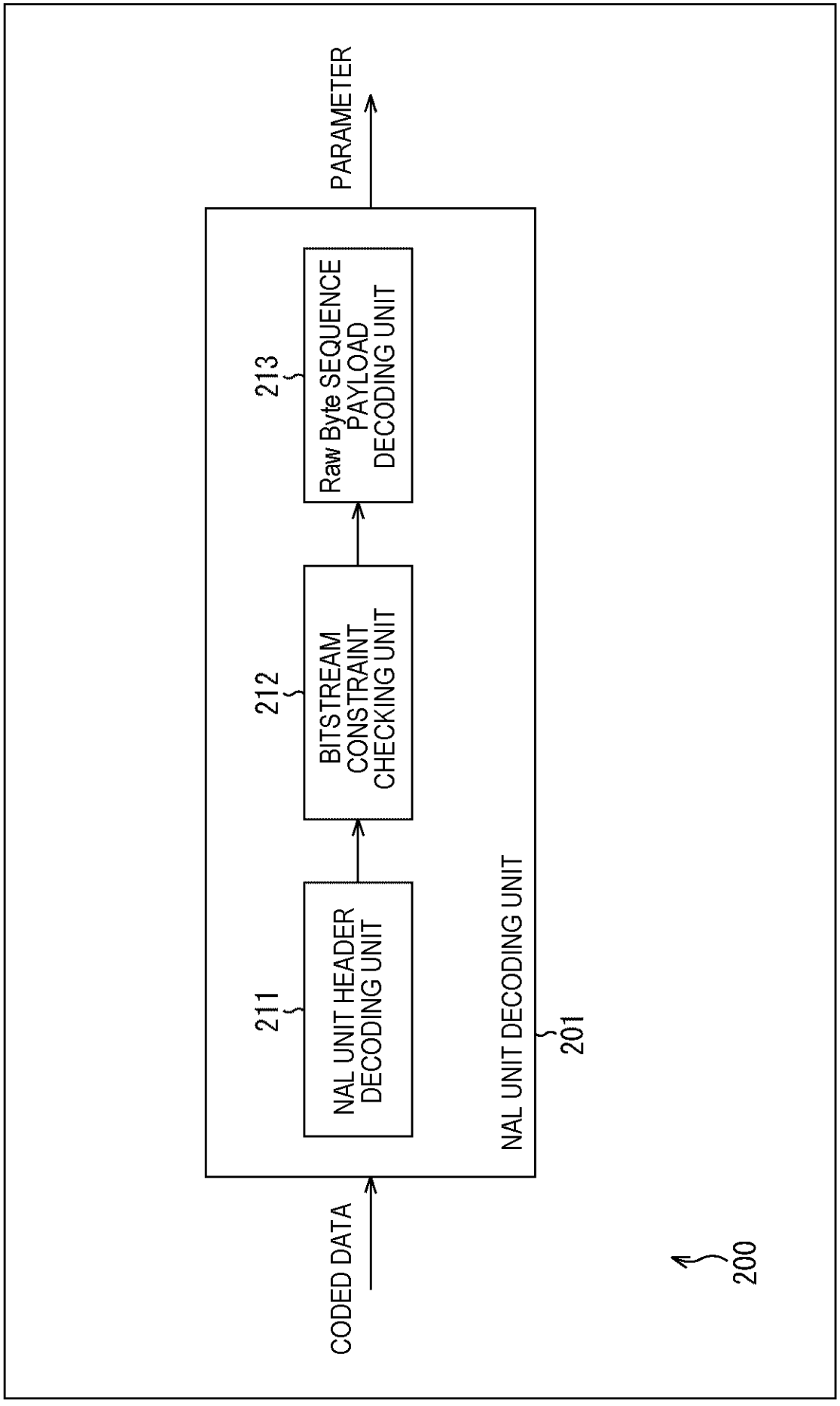

200
CODED DATA
NAL UNIT DECODING UNIT
201
211
NAL UNIT HEADER DECODING UNIT
212
BITSTREAM CONSTRAINT CHECKING UNIT
213
Raw Byte SEQUENCE PAYLOAD DECODING UNIT
PARAMETER

FIG. 8

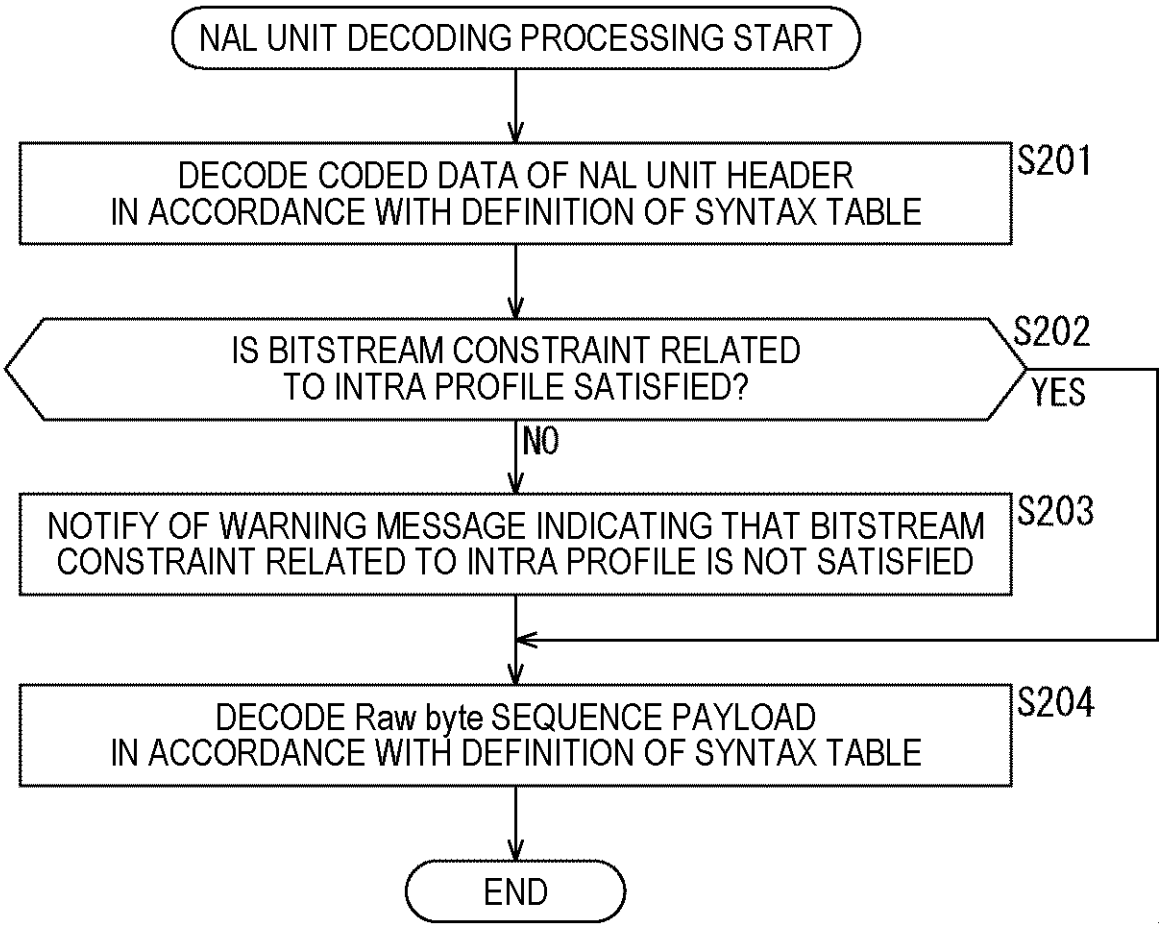

NAL UNIT DECODING PROCESSING START
DECODE CODED DATA OF NAL UNIT HEADER IN ACCORDANCE WITH DEFINITION OF SYNTAX TABLE
S201
IS BITSTREAM CONSTRAINT RELATED TO INTRA PROFILE SATISFIED?
S202
YES
NO
NOTIFY OF WARNING MESSAGE INDICATING THAT BITSTREAM CONSTRAINT RELATED TO INTRA PROFILE IS NOT SATISFIED
S203
DECODE Raw byte SEQUENCE PAYLOAD IN ACCORDANCE WITH DEFINITION OF SYNTAX TABLE
S204
END

FIG. 9

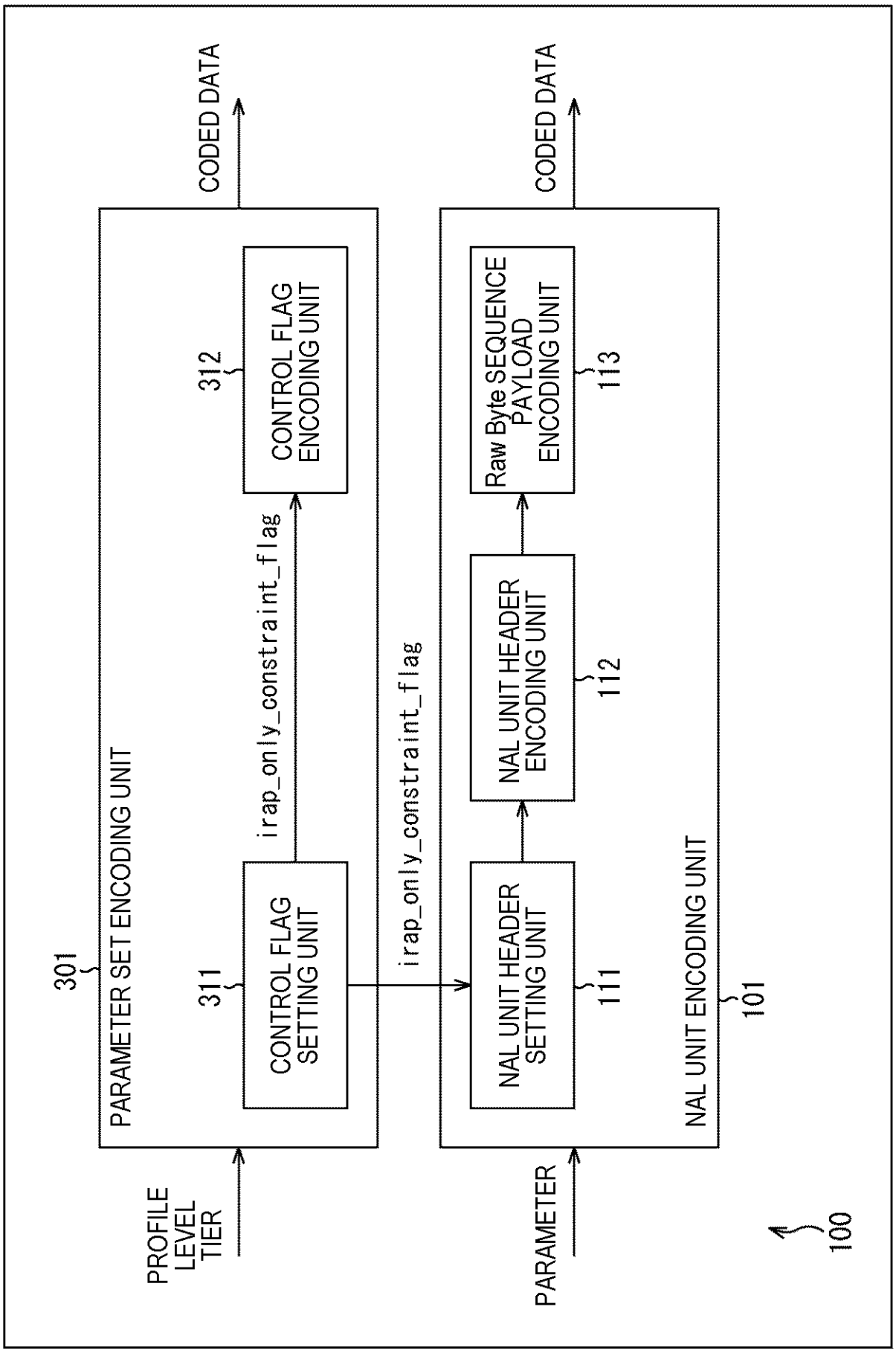

100
PROFILE LEVEL TIER
PARAMETER
301
PARAMETER SET ENCODING UNIT
311
CONTROL FLAG SETTING UNIT
312
CONTROL FLAG ENCODING UNIT
irap_only_constraint_flag
irap_only_constraint_flag
CODED DATA
NAL UNIT ENCODING UNIT
101
NAL UNIT HEADER SETTING UNIT
111
NAL UNIT HEADER ENCODING UNIT
112
Raw Byte SEQUENCE PAYLOAD ENCODING UNIT
113
CODED DATA

FIG. 10

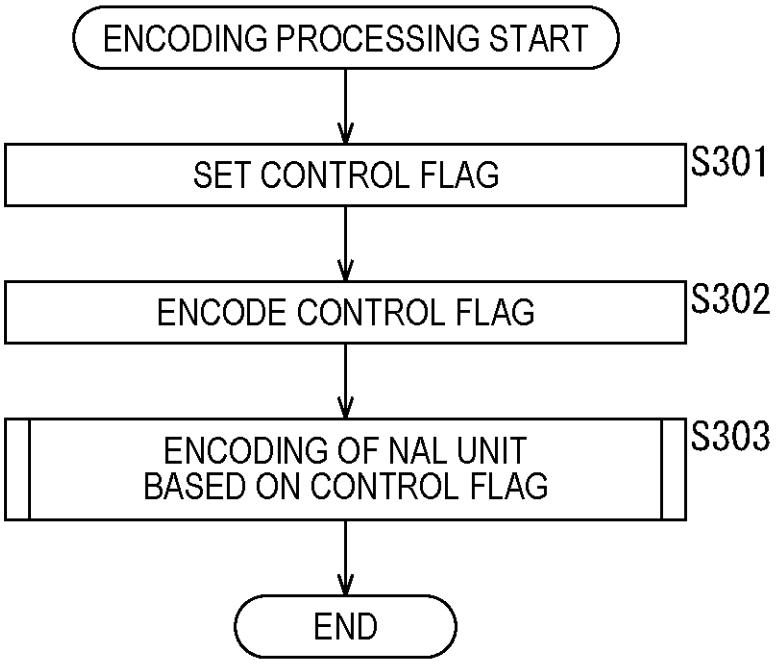

ENCODING PROCESSING START
SET CONTROL FLAG
S301
ENCODE CONTROL FLAG
S302
ENCODING OF NAL UNIT
BASED ON CONTROL FLAG
S303
END

FIG. 11

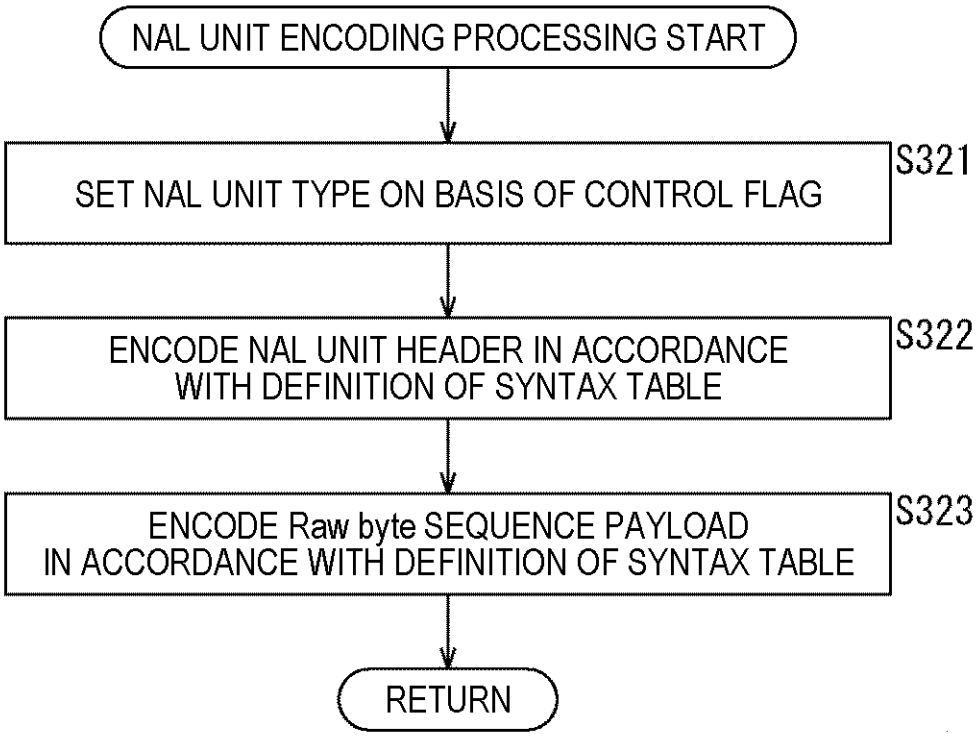

NAL UNIT ENCODING PROCESSING START
SET NAL UNIT TYPE ON BASIS OF CONTROL FLAG
S321
ENCODE NAL UNIT HEADER IN ACCORDANCE
WITH DEFINITION OF SYNTAX TABLE
S322
ENCODE Raw byte SEQUENCE PAYLOAD
IN ACCORDANCE WITH DEFINITION OF SYNTAX TABLE
S323
RETURN

FIG. 12

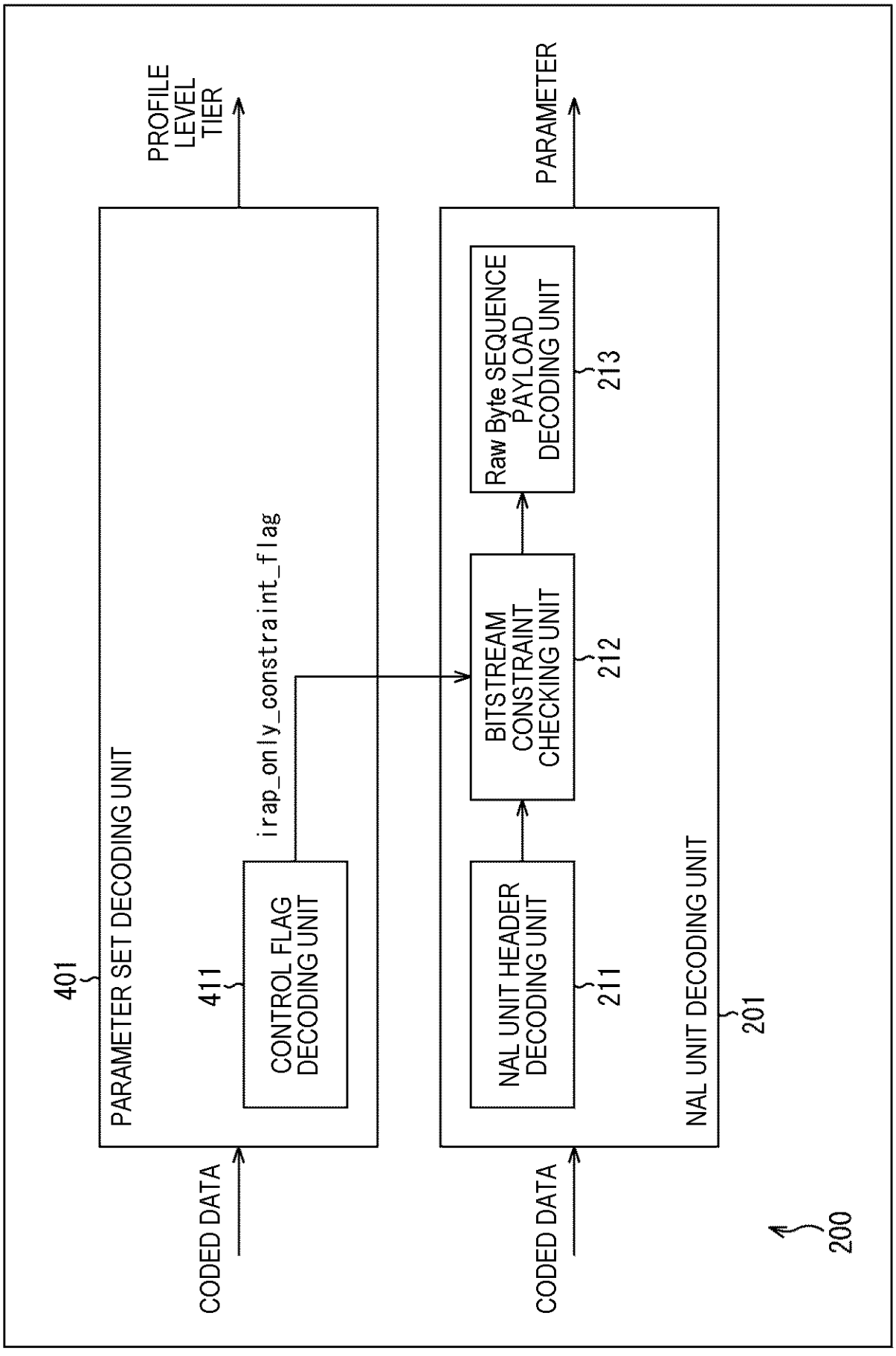

200
CODED DATA
CODED DATA
401
PARAMETER SET DECODING UNIT
411
CONTROL FLAG DECODING UNIT
irap_only_constraint_flag
PROFILE LEVEL TIER
NAL UNIT DECODING UNIT
201
NAL UNIT HEADER DECODING UNIT
211
BITSTREAM CONSTRAINT CHECKING UNIT
212
Raw Byte SEQUENCE PAYLOAD DECODING UNIT
213
PARAMETER

FIG. 13

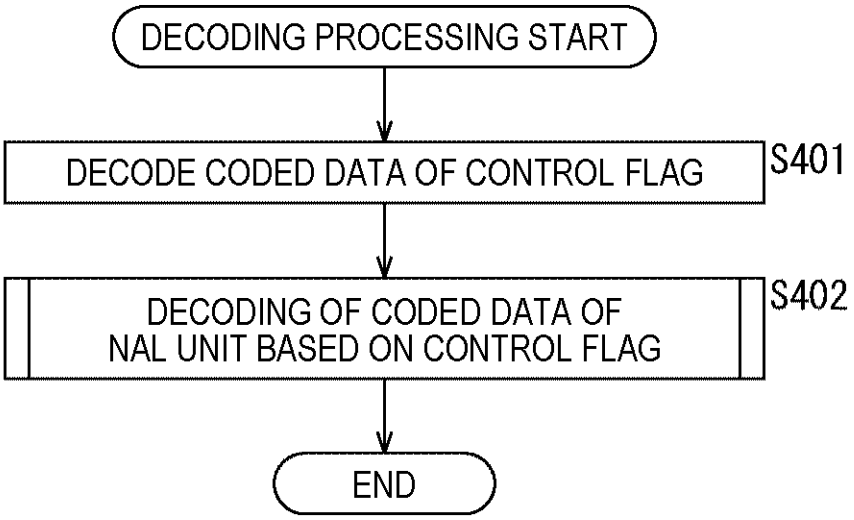

DECODING PROCESSING START
DECODE CODED DATA OF CONTROL FLAG
S401
DECODING OF CODED DATA OF NAL UNIT BASED ON CONTROL FLAG
S402
END

FIG. 14

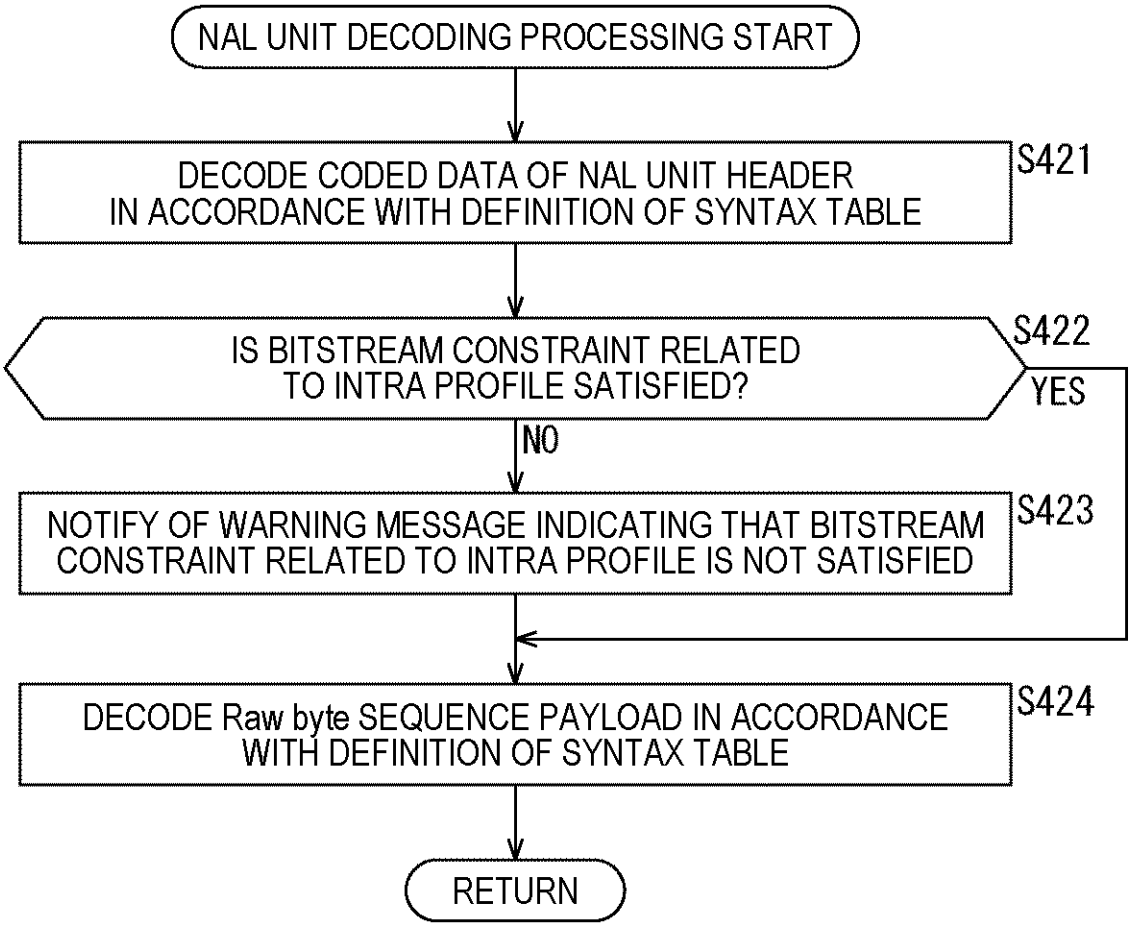

NAL UNIT DECODING PROCESSING START
DECODE CODED DATA OF NAL UNIT HEADER IN ACCORDANCE WITH DEFINITION OF SYNTAX TABLE
S421
IS BITSTREAM CONSTRAINT RELATED TO INTRA PROFILE SATISFIED?
S422
YES
NO
NOTIFY OF WARNING MESSAGE INDICATING THAT BITSTREAM CONSTRAINT RELATED TO INTRA PROFILE IS NOT SATISFIED
S423
DECODE Raw byte SEQUENCE PAYLOAD IN ACCORDANCE WITH DEFINITION OF SYNTAX TABLE
S424
RETURN

FIG. 15

METHOD 2	IN CASE OF INTRA PROFILE, INTRA-only CONSTRAINT FLAG IS LIMITED TO TRUE
METHOD 2-1	IN CASE WHERE PROFILE IS ANY OF Main 12 Intra profile, Main 12 4:4:4 Intra profile, OR Main 16 4:4:4 Intra profile, INTRA-only CONSTRAINT FLAG IS LIMITED TO TRUE
METHOD 2-1-1	IN CASE WHERE PROFILE IDENTIFIER IS 10, 42 OR 44, INTRA-only CONSTRAINT FLAG IS LIMITED TO TRUE
METHOD 2-2	ALSO IN CASE OF STILL PICTURE PROFILE, INTRA-only CONSTRAINT FLAG IS LIMITED TO TRUE

FIG. 16

In bitstreams conforming to the Main 12 Intra, Main 12 4:4:4 Intra, or Main 16 4:4:4 Intra profiles, gci_intra_only_constraint_flag for all values of i in active SPSs shall be equal to 1.

FIG. 17

7.3.3.2 General constraints information syntax

general_constraints_info( ){	Descriptor
...	
gci_intra_only_constraint_flag	u(1)
...	
gci_no_virtual_boundaries_constraint_flag	u(1)
gci_num_additional_bits	u(8)
if(gci_num_additional_bits > 0){	
general_lower_bit_rate_constraint_flag	u(1)
numAdditionalBitsUsed = 1	
} else	
numAdditionalBitsUsed = 0	
for(i=0; i<gci_num_additional_bits - numAdditionalBitsUsed; i++)	
gci_reserved_zero_bit[i]	u(1)
}	
while(!byte_aligned( ))	
gci_alignment_zero_bit	f(1)
}	

[Semantic on gci_intra_only_constraint_flag]
gci_intra_only_constraint_flag equal to 1 specifies that sh_slice_type for all slices in OlsInScope shall be equal to 2. gci_intra_only_constraint_flag equal to 0 does not impose such a constraint.

FIG. 18

A3.5 Format range extensions profiles
The following profiles, collectively referred to as the format range extensions profiles, are specified in this subclause:
・The Main 12, Main 12 4:4:4 and Main 16 4:4:4 profiles
・The Main 12 Intra, Main 12 4:4:4 Intra and Main 16 4:4:4 Intra profiles
・The Main 12 Still Picture, Main 12 4:4:4 Still Picture and Main 16 4:4:4 Still Picture profiles

Bitstreams conforming to the format range extensions profiles shall obey the following constraints:
・Referenced SPSs shall have ptl_multilayer_enabled_flag equal to 0.
・In bitstreams conforming to the Main 12 Still Picture, Main 12 4:4:4 Still Picture and Main 16 4:4:4 Still Picture profiles, the bitstream shall contain only one picture.
・In bitstreams conforming to the Main 12, Main 12 4:4:4, Main 16 4:4:4, Main 12 Intra, Main 12 4:4:4 Intra, or Main 16 4:4:4 Intra profiles, general_level_idc for all values of i in active SPSs shall not be equal to 255 (which indicates level 15.5).
・The tier and level constraints specified for the Main 12, Main 12 4:4:4, Main 16 4:4:4, Main 12 Intra, Main 12 4:4:4 Intra or Main 16 4:4:4 Intra profiles in subclause A.4, as applicable, shall be fulfilled.

・In bitstreams conforming to the Main 12 Intra, Main 12 4:4:4 Intra, or Main 16 4:4:4 Intra profiles, gci_intra_only_constraint_flag for all values of i in active SPSs shall be equal to 1.
Or
In bitstreams conforming to the Main 12 Intra, Main 12 4:4:4 Intra, or Main 16 4:4:4 Intra profiles, sh_slice_type for all slices in OlsInScope shall be equal to 2.

FIG. 19

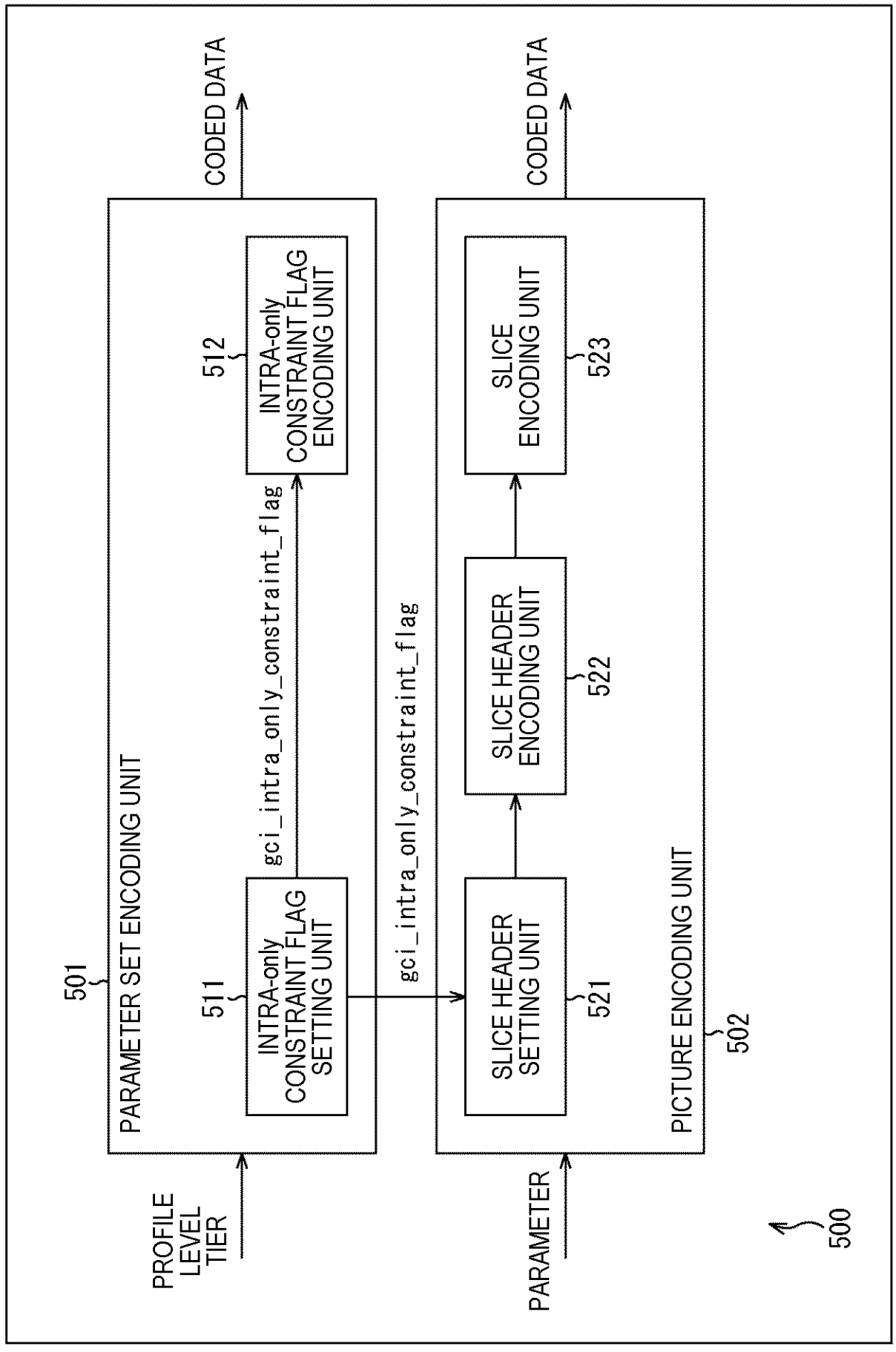

500
PROFILE LEVEL TIER
PARAMETER
501
PARAMETER SET ENCODING UNIT
511
INTRA-only CONSTRAINT FLAG SETTING UNIT
512
INTRA-only CONSTRAINT FLAG ENCODING UNIT
gci_intra_only_constraint_flag
gci_intra_only_constraint_flag
502
PICTURE ENCODING UNIT
521
SLICE HEADER SETTING UNIT
522
SLICE HEADER ENCODING UNIT
523
SLICE ENCODING UNIT
CODED DATA
CODED DATA

FIG. 20

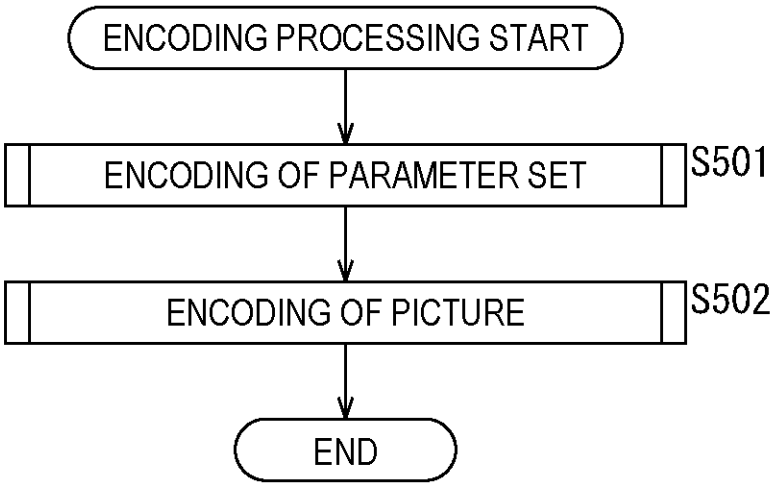

ENCODING PROCESSING START
ENCODING OF PARAMETER SET
S501
ENCODING OF PICTURE
S502
END

FIG. 21

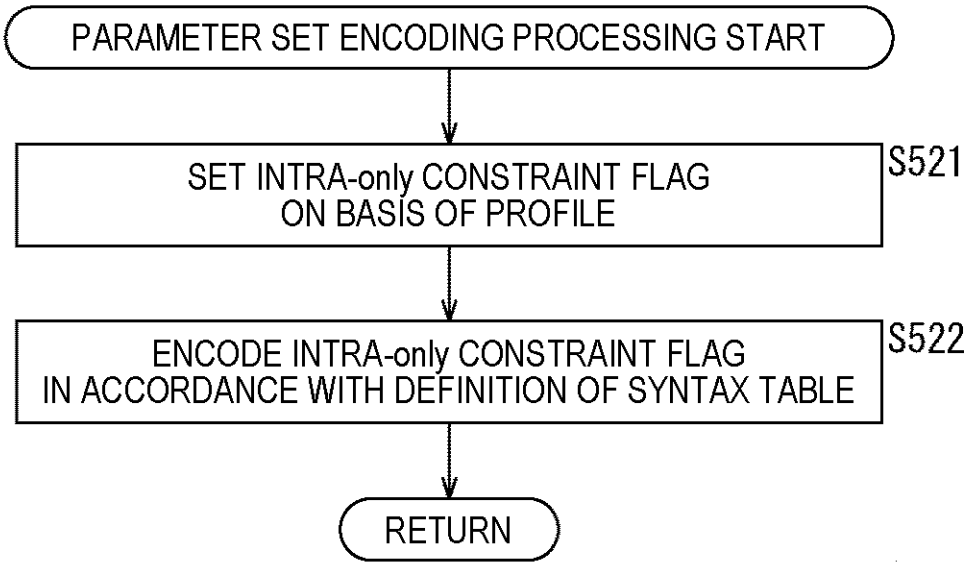

PARAMETER SET ENCODING PROCESSING START
SET INTRA-only CONSTRAINT FLAG
ON BASIS OF PROFILE
S521
ENCODE INTRA-only CONSTRAINT FLAG
IN ACCORDANCE WITH DEFINITION OF SYNTAX TABLE
S522
RETURN

FIG. 22

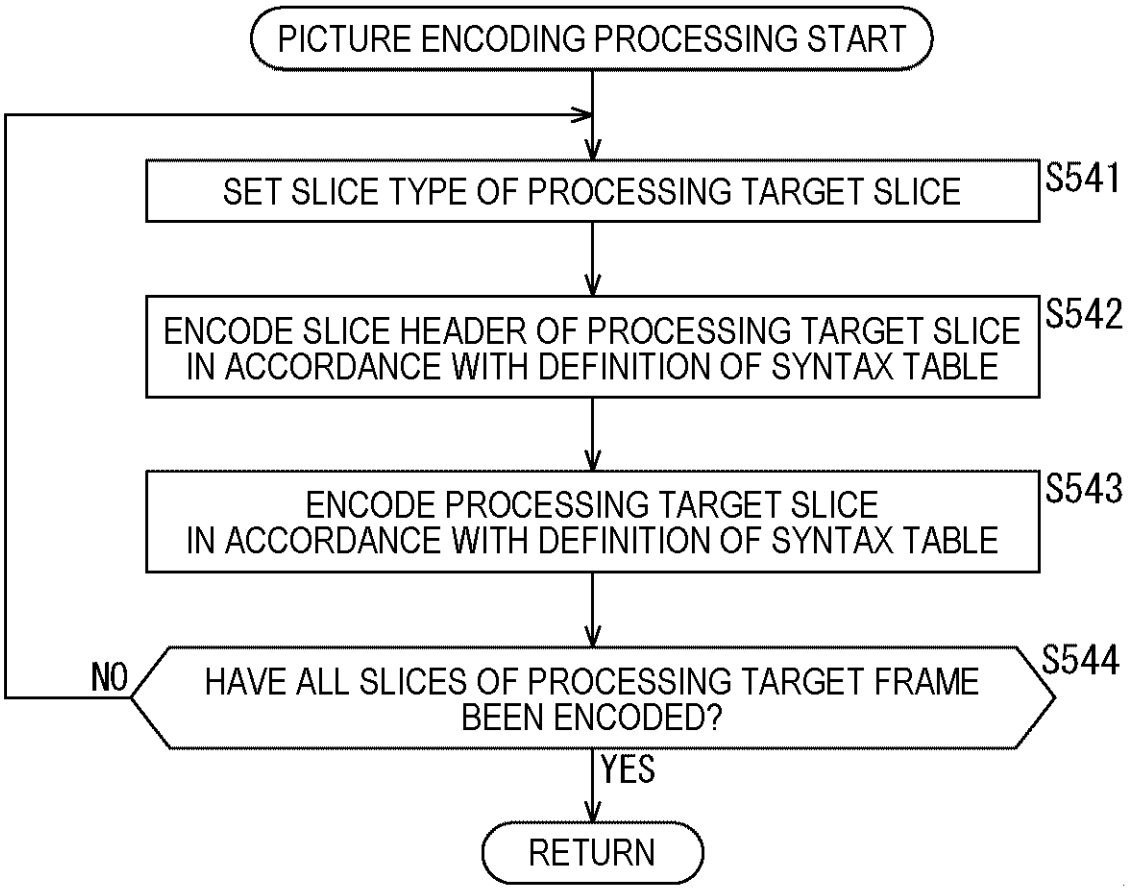

PICTURE ENCODING PROCESSING START
SET SLICE TYPE OF PROCESSING TARGET SLICE
S541
ENCODE SLICE HEADER OF PROCESSING TARGET SLICE IN ACCORDANCE WITH DEFINITION OF SYNTAX TABLE
S542
ENCODE PROCESSING TARGET SLICE IN ACCORDANCE WITH DEFINITION OF SYNTAX TABLE
S543
HAVE ALL SLICES OF PROCESSING TARGET FRAME BEEN ENCODED?
S544
NO
YES
RETURN

FIG. 23

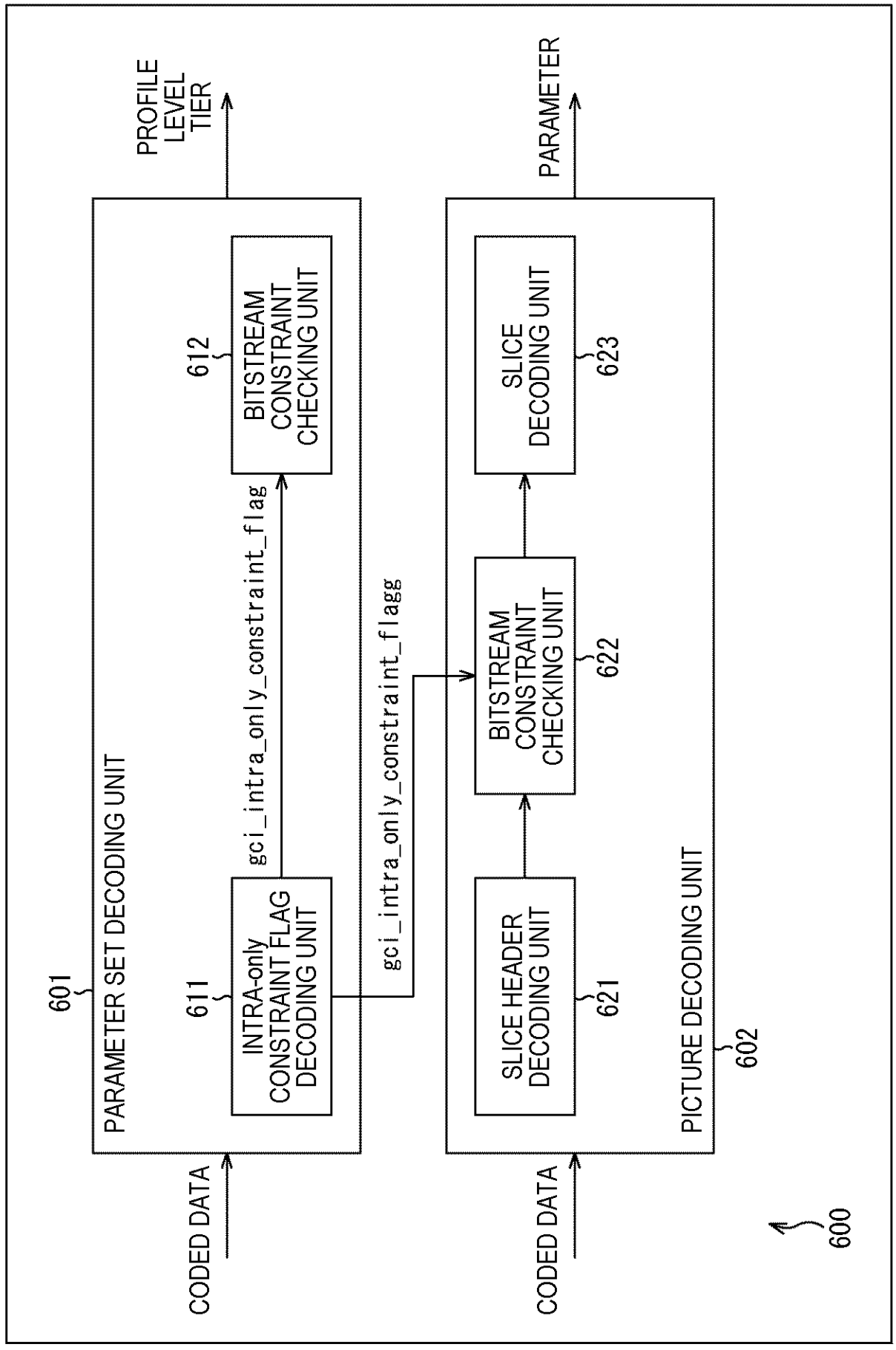

600
CODED DATA
601
PARAMETER SET DECODING UNIT
611
INTRA-only CONSTRAINT FLAG DECODING UNIT
gci_intra_only_constraint_flag
612
BITSTREAM CONSTRAINT CHECKING UNIT
PROFILE LEVEL TIER
gci_intra_only_constraint_flagg
CODED DATA
602
PICTURE DECODING UNIT
621
SLICE HEADER DECODING UNIT
622
BITSTREAM CONSTRAINT CHECKING UNIT
623
SLICE DECODING UNIT
PARAMETER

FIG. 24

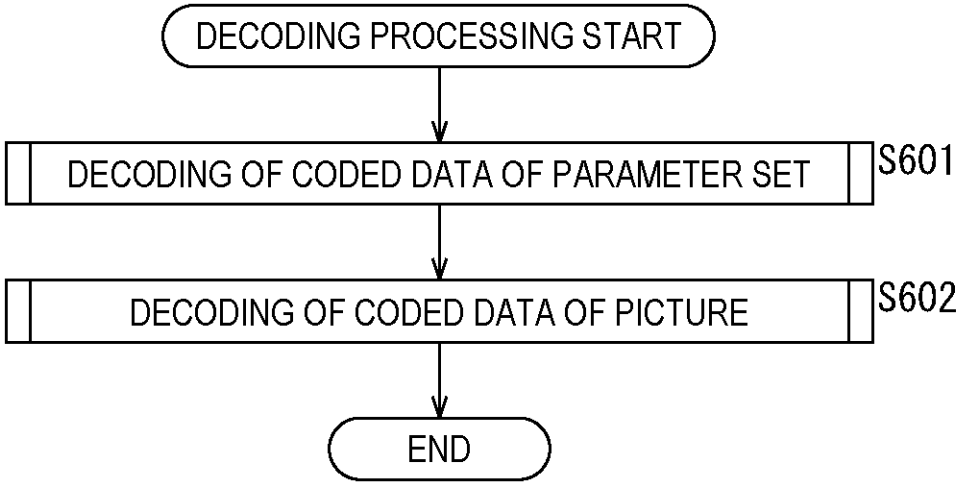

DECODING PROCESSING START
DECODING OF CODED DATA OF PARAMETER SET
S601
DECODING OF CODED DATA OF PICTURE
S602
END

FIG. 25

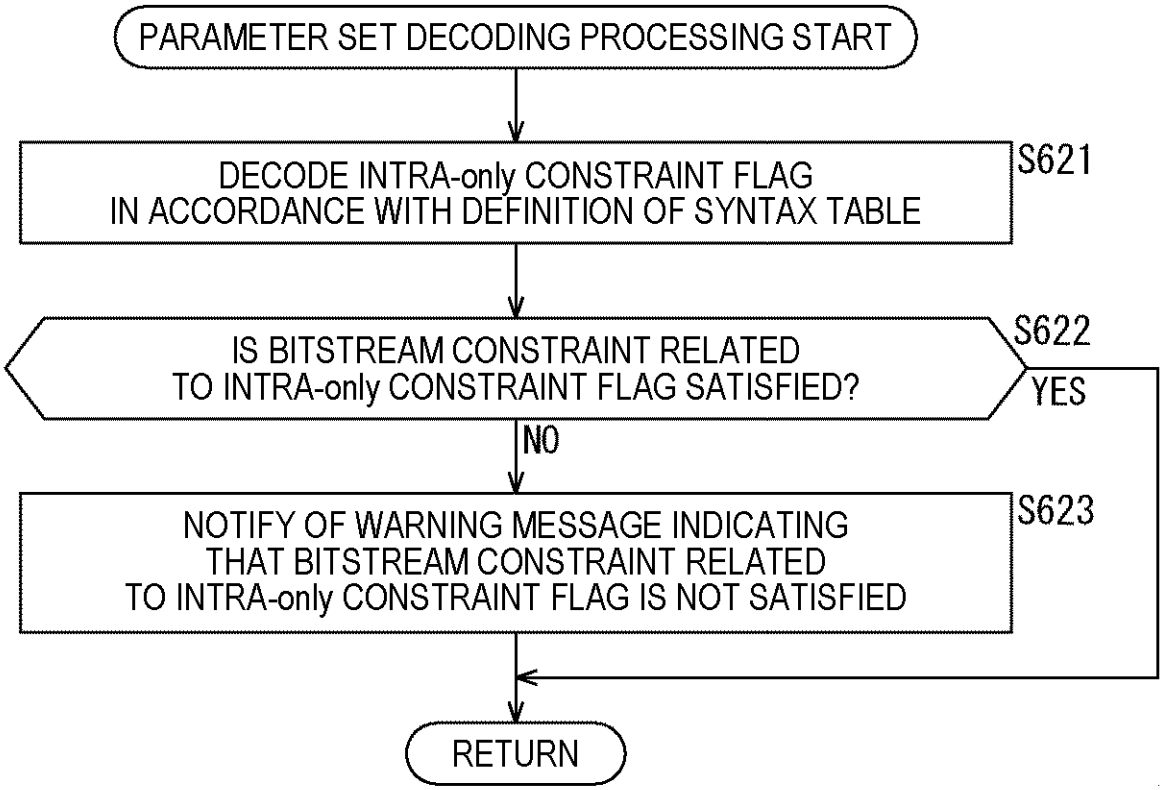

PARAMETER SET DECODING PROCESSING START
DECODE INTRA-only CONSTRAINT FLAG
IN ACCORDANCE WITH DEFINITION OF SYNTAX TABLE
S621
IS BITSTREAM CONSTRAINT RELATED
TO INTRA-only CONSTRAINT FLAG SATISFIED?
S622
YES
NO
NOTIFY OF WARNING MESSAGE INDICATING
THAT BITSTREAM CONSTRAINT RELATED
TO INTRA-only CONSTRAINT FLAG IS NOT SATISFIED
S623
RETURN

FIG. 26

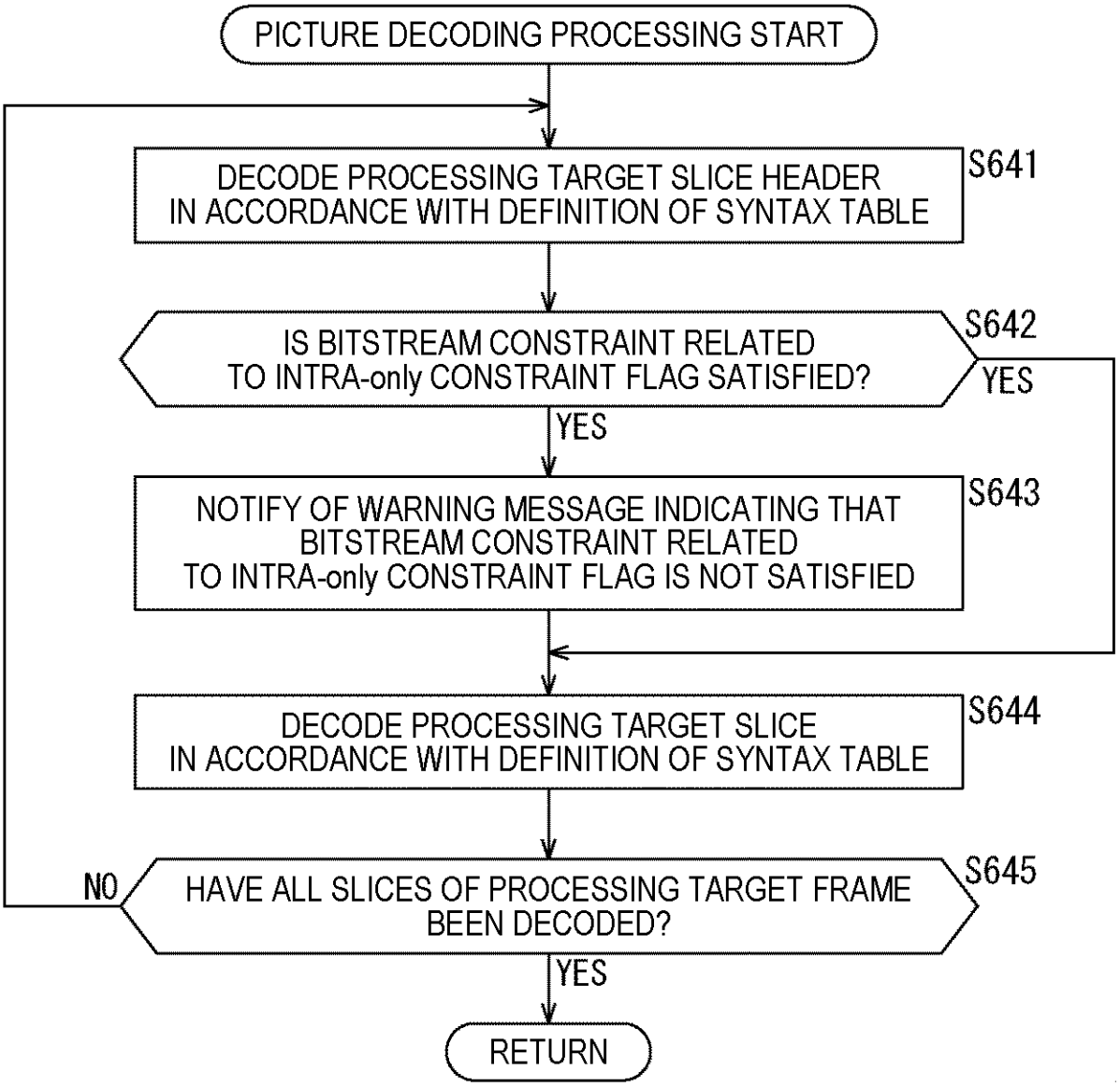

PICTURE DECODING PROCESSING START
DECODE PROCESSING TARGET SLICE HEADER IN ACCORDANCE WITH DEFINITION OF SYNTAX TABLE
S641
IS BITSTREAM CONSTRAINT RELATED TO INTRA-only CONSTRAINT FLAG SATISFIED?
S642
YES
YES
NOTIFY OF WARNING MESSAGE INDICATING THAT BITSTREAM CONSTRAINT RELATED TO INTRA-only CONSTRAINT FLAG IS NOT SATISFIED
S643
DECODE PROCESSING TARGET SLICE IN ACCORDANCE WITH DEFINITION OF SYNTAX TABLE
S644
NO
HAVE ALL SLICES OF PROCESSING TARGET FRAME BEEN DECODED?
S645
YES
RETURN

FIG. 27

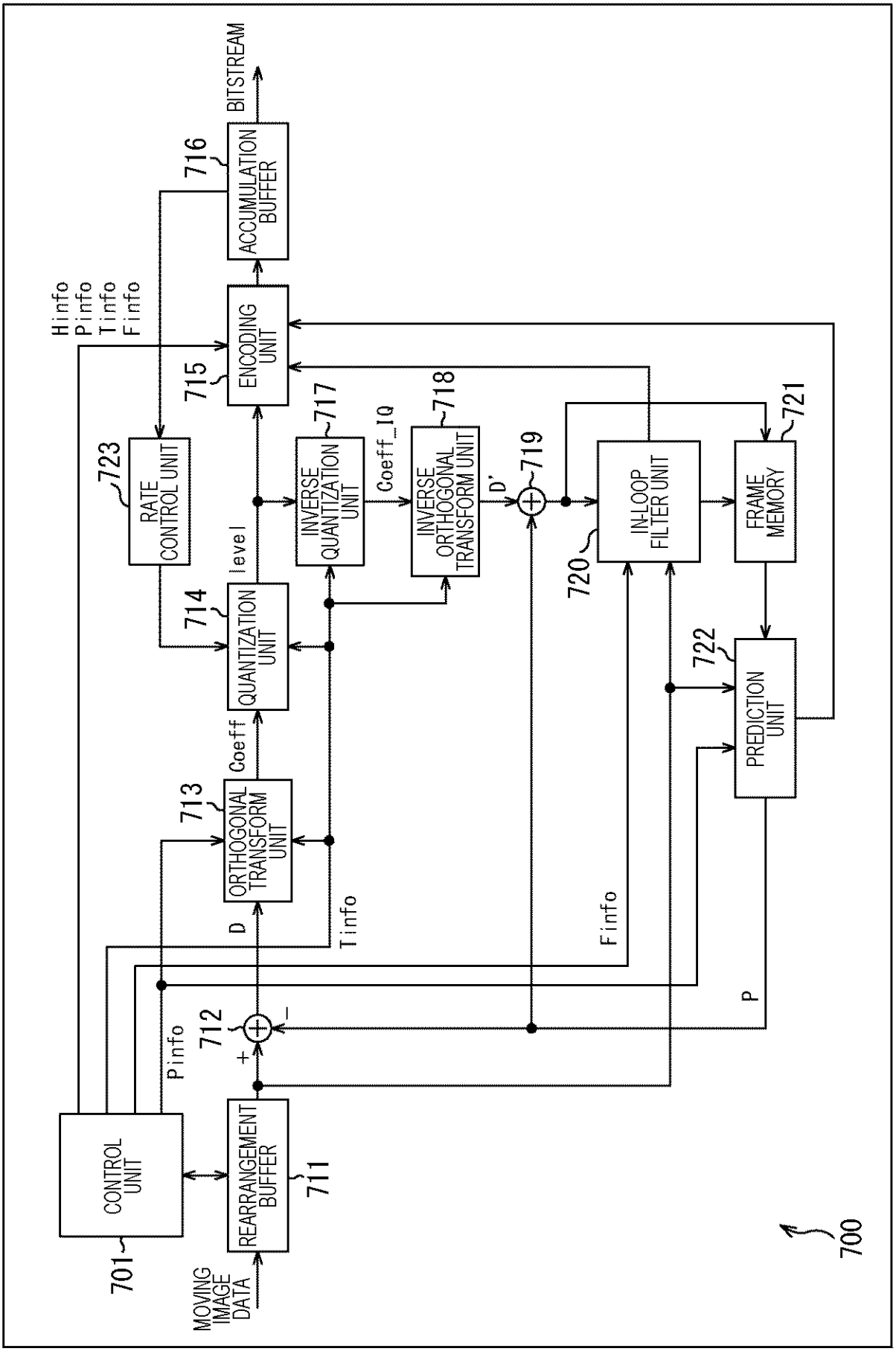

MOVING IMAGE DATA
CONTROL UNIT
REARRANGEMENT BUFFER
ORTHOGONAL TRANSFORM UNIT
QUANTIZATION UNIT
INVERSE QUANTIZATION UNIT
INVERSE ORTHOGONAL TRANSFORM UNIT
IN-LOOP FILTER UNIT
FRAME MEMORY
PREDICTION UNIT
RATE CONTROL UNIT
ENCODING UNIT
ACCUMULATION BUFFER
BITSTREAM
Hinfo
Pinfo
Tinfo
Finfo
Pinfo
D
Coeff
level
Coeff_IQ
D'
Tinfo
Finfo
P
701
711
712
713
714
715
716
717
718
719
720
721
722
723
700

FIG. 28

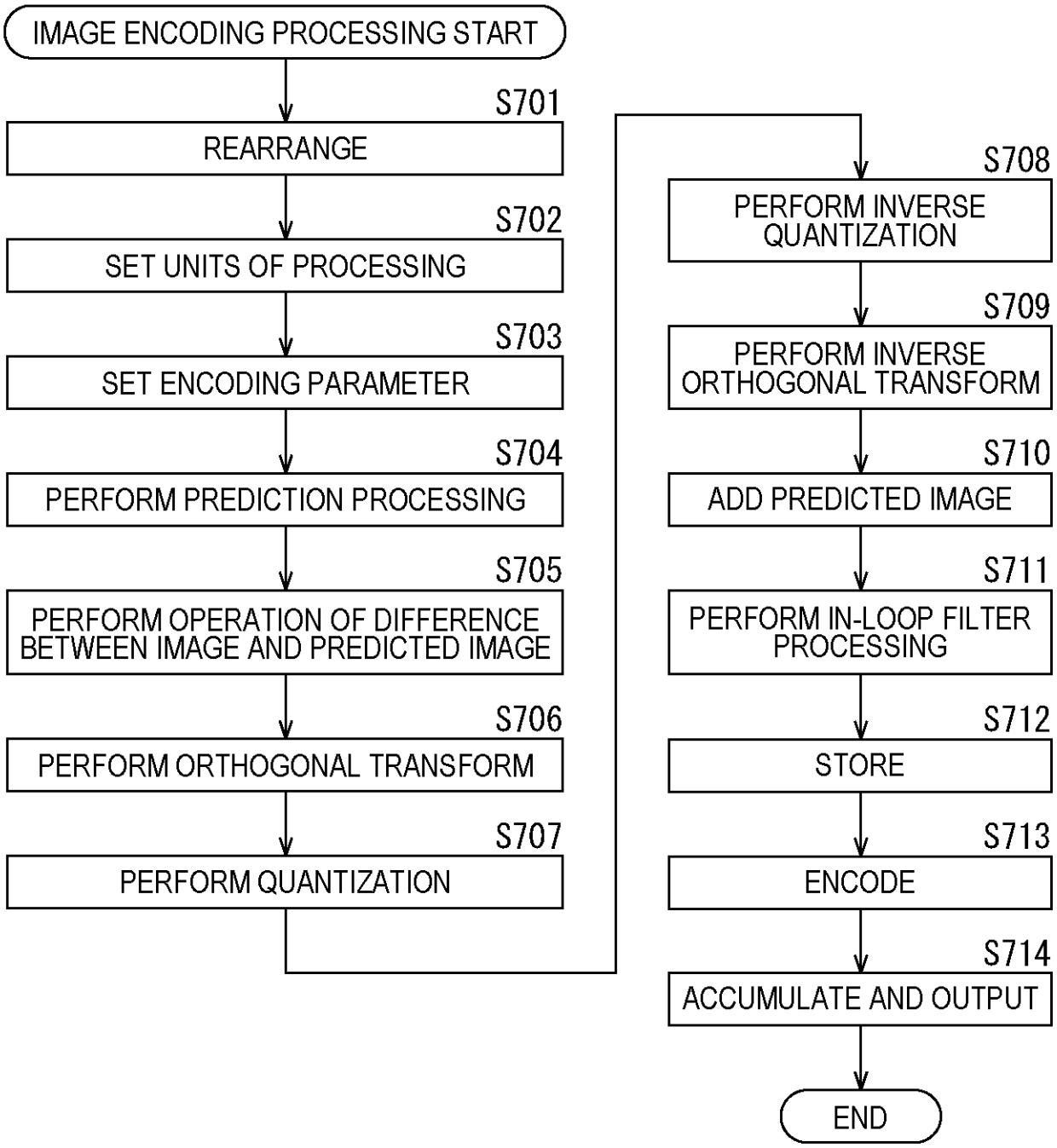

IMAGE ENCODING PROCESSING START
S701
REARRANGE
S702
SET UNITS OF PROCESSING
S703
SET ENCODING PARAMETER
S704
PERFORM PREDICTION PROCESSING
S705
PERFORM OPERATION OF DIFFERENCE BETWEEN IMAGE AND PREDICTED IMAGE
S706
PERFORM ORTHOGONAL TRANSFORM
S707
PERFORM QUANTIZATION
S708
PERFORM INVERSE QUANTIZATION
S709
PERFORM INVERSE ORTHOGONAL TRANSFORM
S710
ADD PREDICTED IMAGE
S711
PERFORM IN-LOOP FILTER PROCESSING
S712
STORE
S713
ENCODE
S714
ACCUMULATE AND OUTPUT
END

FIG. 29

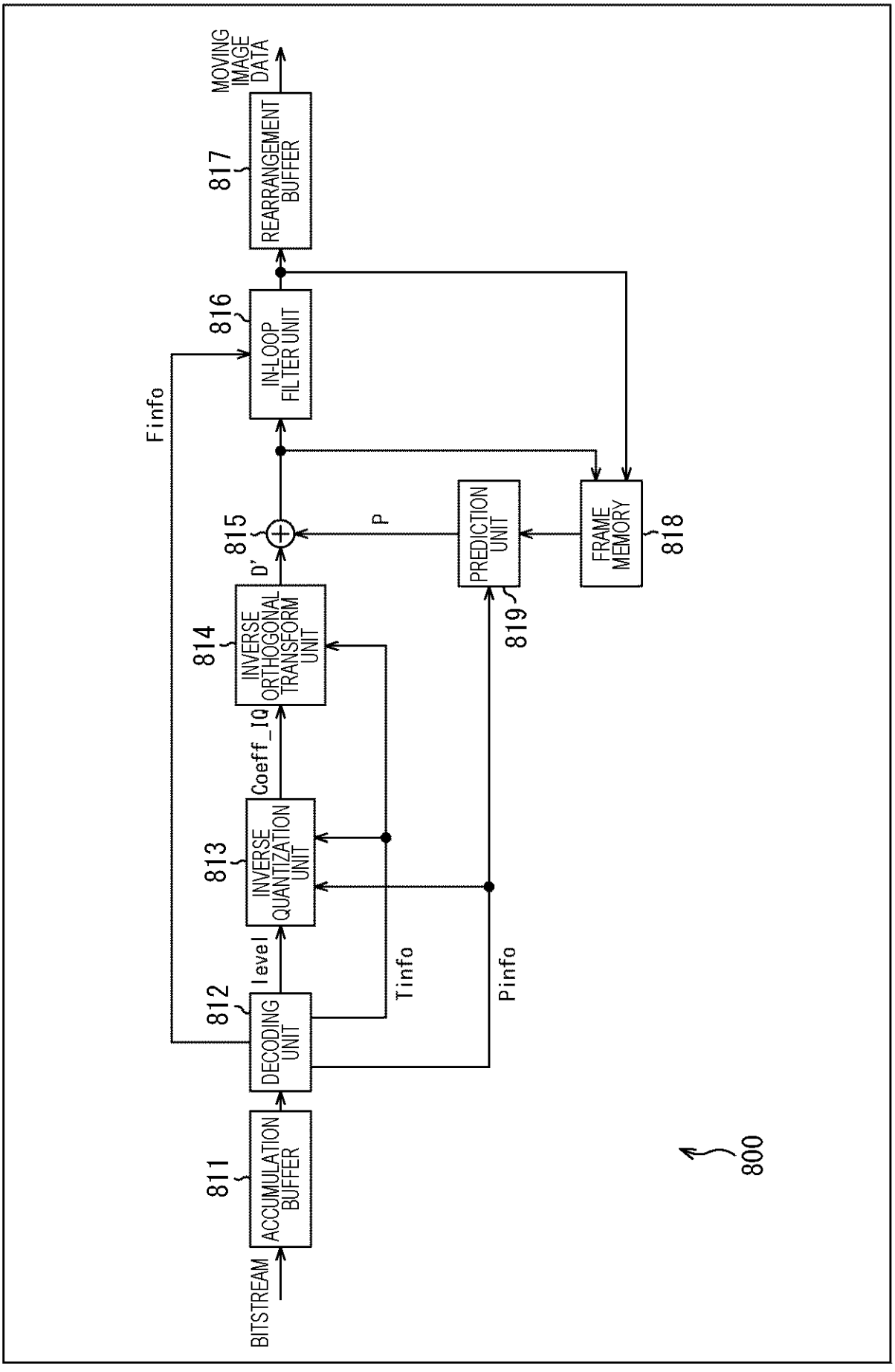

800
BITSTREAM
811
ACCUMULATION BUFFER
812
DECODING UNIT
level
813
INVERSE QUANTIZATION UNIT
Coeff_IQ
814
INVERSE ORTHOGONAL TRANSFORM UNIT
D'
815
816
IN-LOOP FILTER UNIT
817
REARRANGEMENT BUFFER
MOVING IMAGE DATA
Finfo
Tinfo
Pinfo
P
PREDICTION UNIT
819
FRAME MEMORY
818

FIG. 30

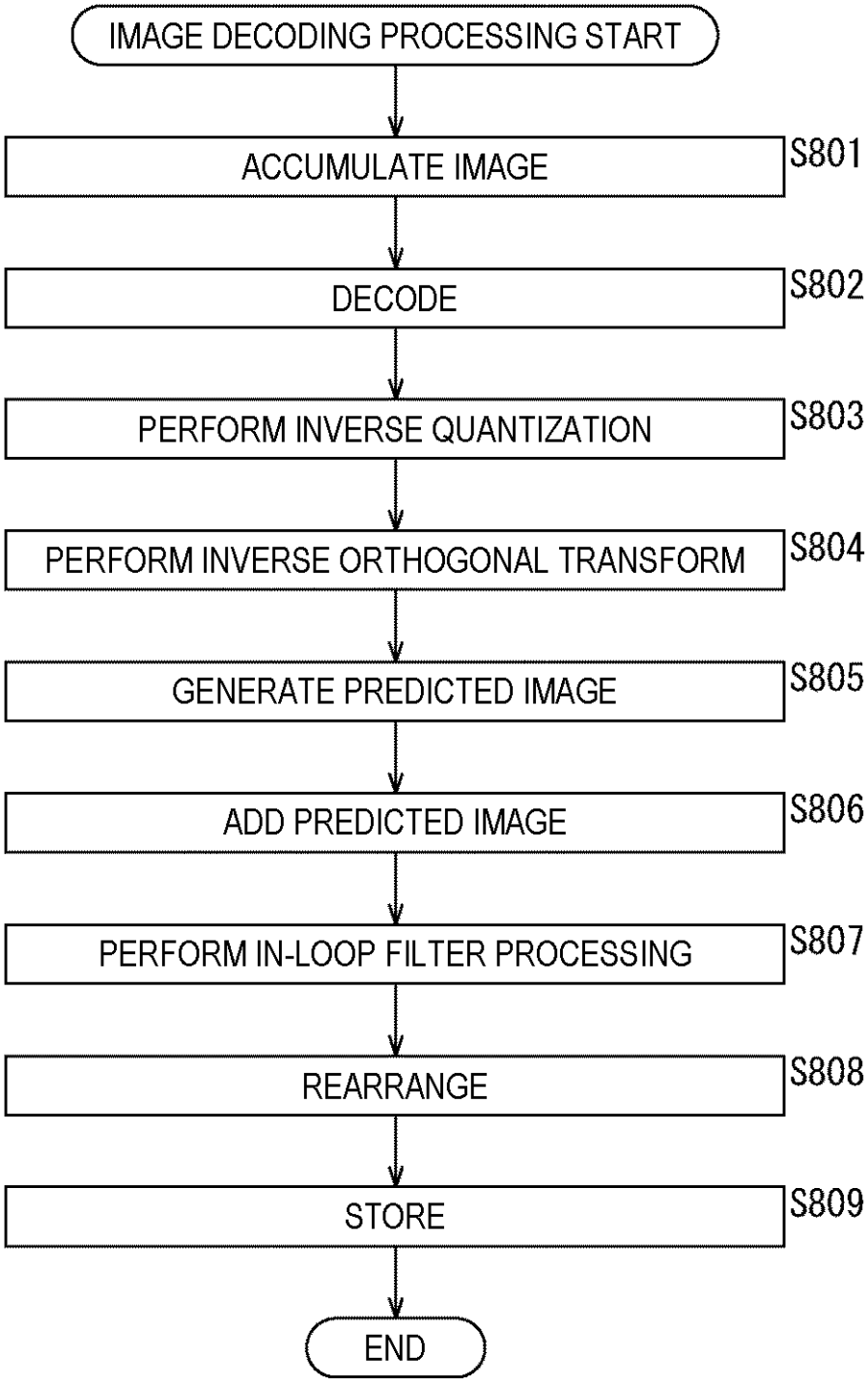
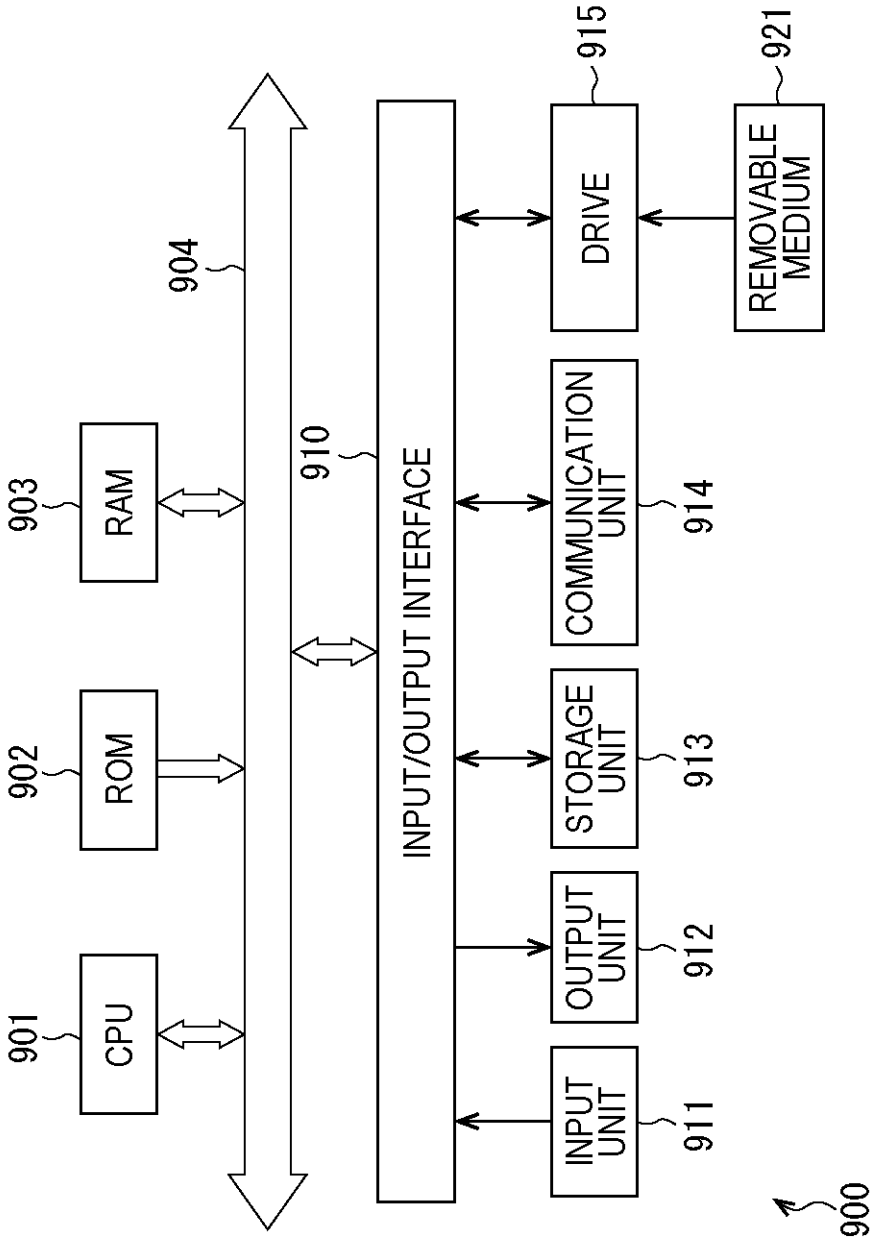

IMAGE DECODING PROCESSING START
ACCUMULATE IMAGE
S801
DECODE
S802
PERFORM INVERSE QUANTIZATION
S803
PERFORM INVERSE ORTHOGONAL TRANSFORM
S804
GENERATE PREDICTED IMAGE
S805
ADD PREDICTED IMAGE
S806
PERFORM IN-LOOP FILTER PROCESSING
S807
REARRANGE
S808
STORE
S809
END

FIG. 31


900
901
CPU
902
ROM
903
RAM
904
910
INPUT/OUTPUT INTERFACE
911
INPUT UNIT
912
OUTPUT UNIT
913
STORAGE UNIT
914
COMMUNICATION UNIT
915
DRIVE
921
REMOVABLE MEDIUM