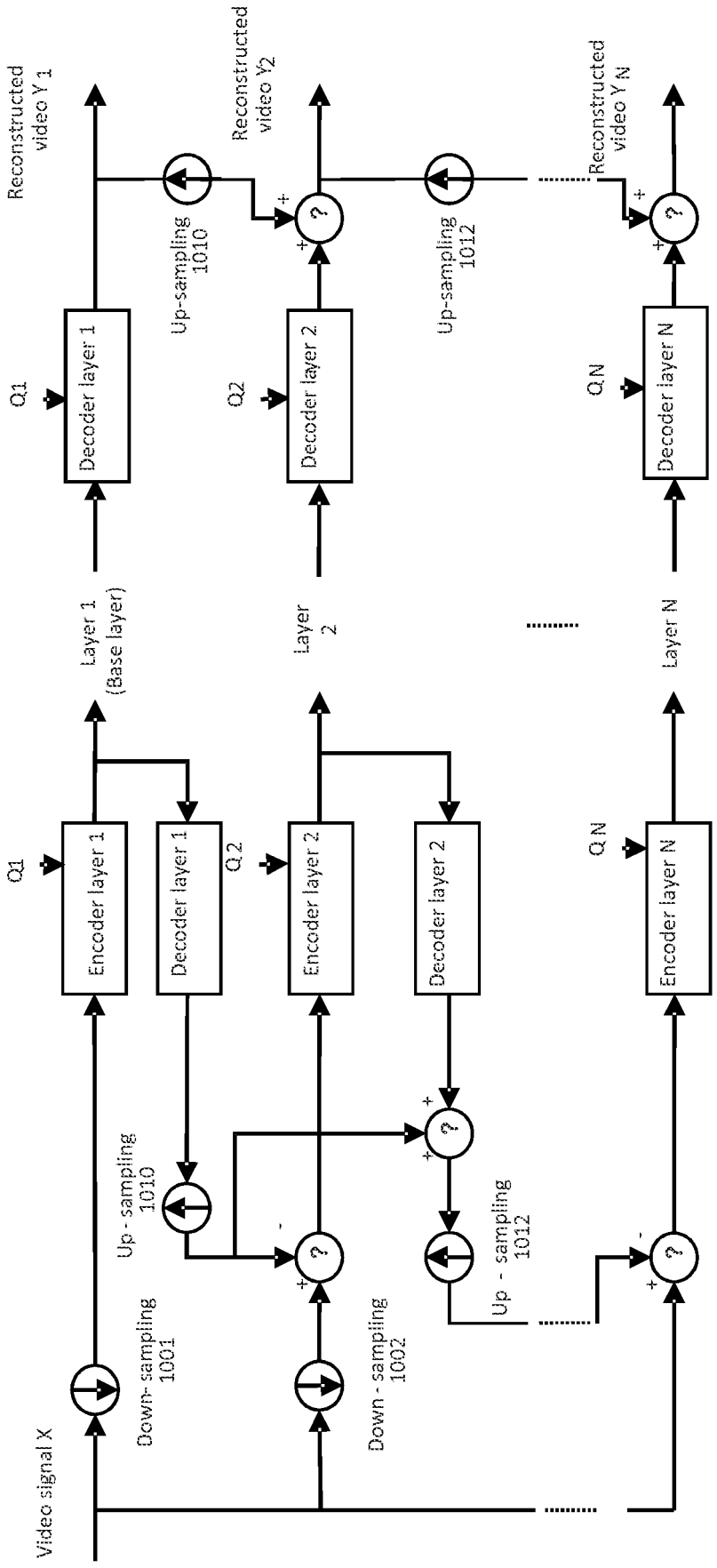
Reconstructed video Y 1
Reconstructed video Y2
Reconstructed video Y N
Up-sampling 1010
Up-sampling 1012
Q1
Q2
Q N
Decoder layer 1
Decoder layer 2
Decoder layer N
Layer 1 (Base layer)
Layer 2
Layer N
Encoder layer 1
Encoder layer 2
Encoder layer N
Up - sampling 1010
Up - sampling 1012
Down- sampling 1001
Down - sampling 1002
Video signal X

FIG. 1

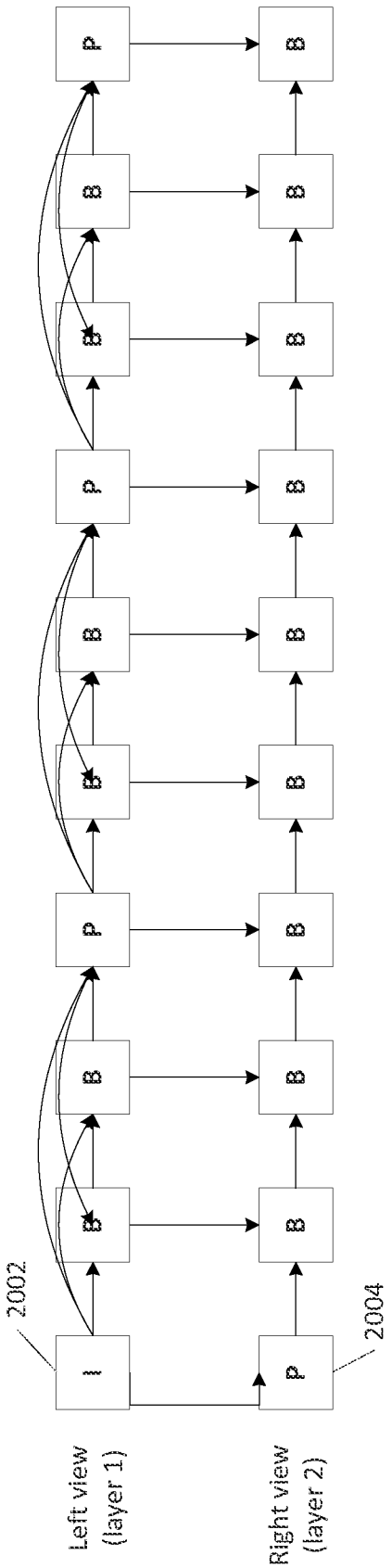

FIG. 2

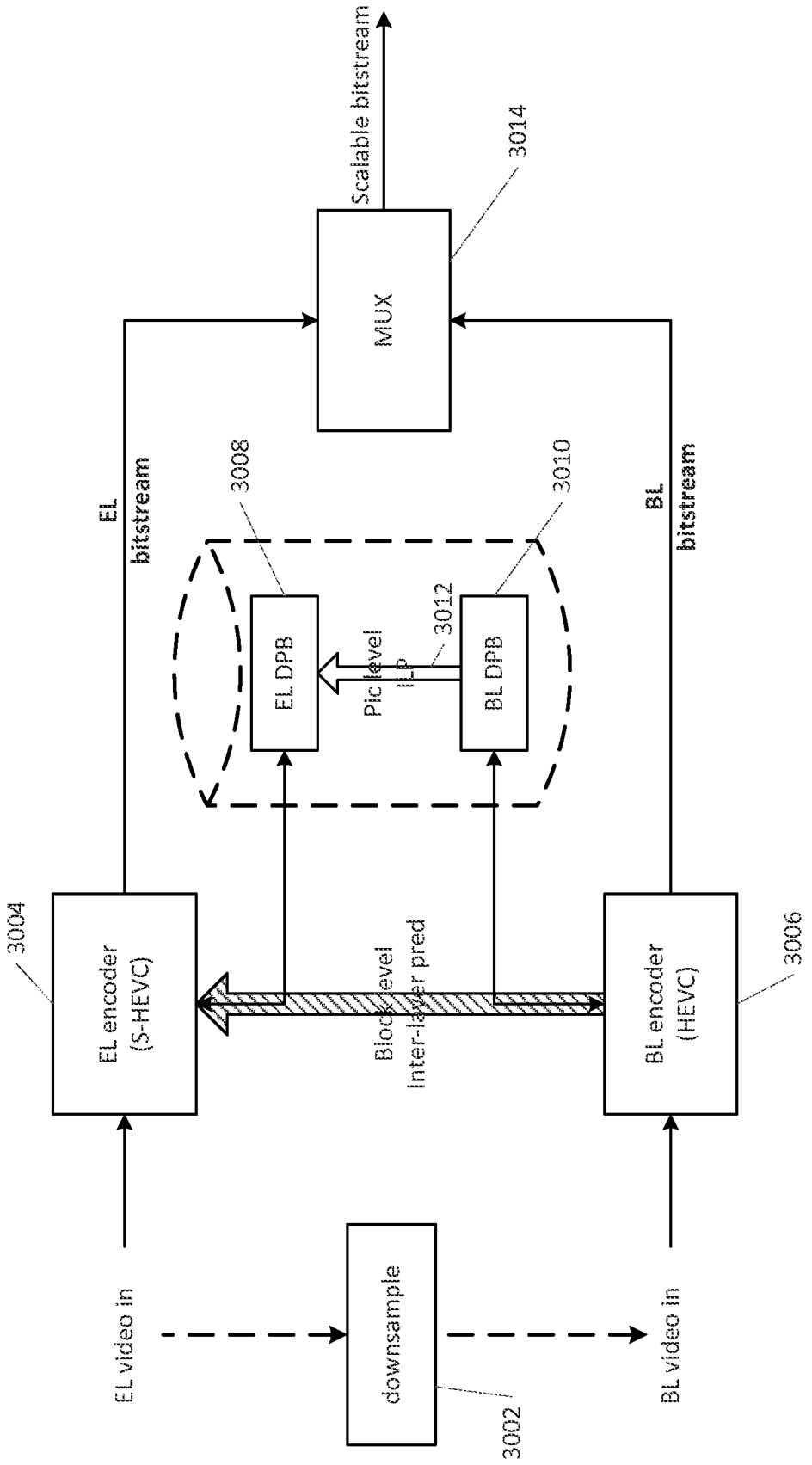
Scalable bitstream
3014
MUX
EL bitstream
BL bitstream
3008
3010
EL DPB
Pic level ILP
3012
BL DPB
3004
EL encoder (S-HEVC)
Block level inter-layer pred
BL encoder (HEVC)
3006
EL video in
downsample
BL video in
3002

FIG. 3

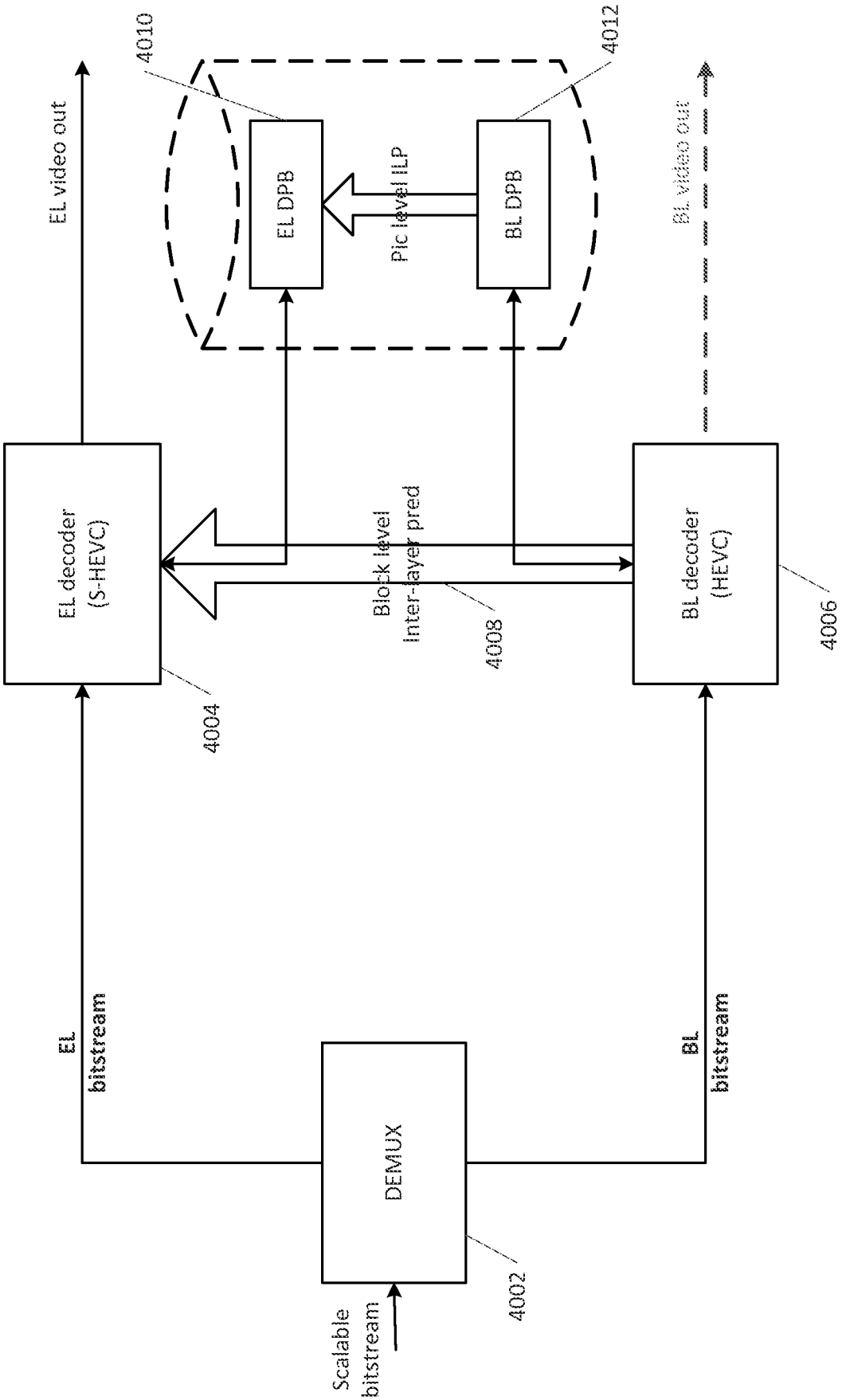
4010
4012
EL video out
EL DPB
Pic level ILP
BL DPB
BL video out
EL decoder
(S-HEVC)
Block level
Inter-layer pred
BL decoder
(HEVC)
4004
4008
4006
EL
bitstream
BL
bitstream
DEMUX
4002
Scalable
bitstream

FIG. 4

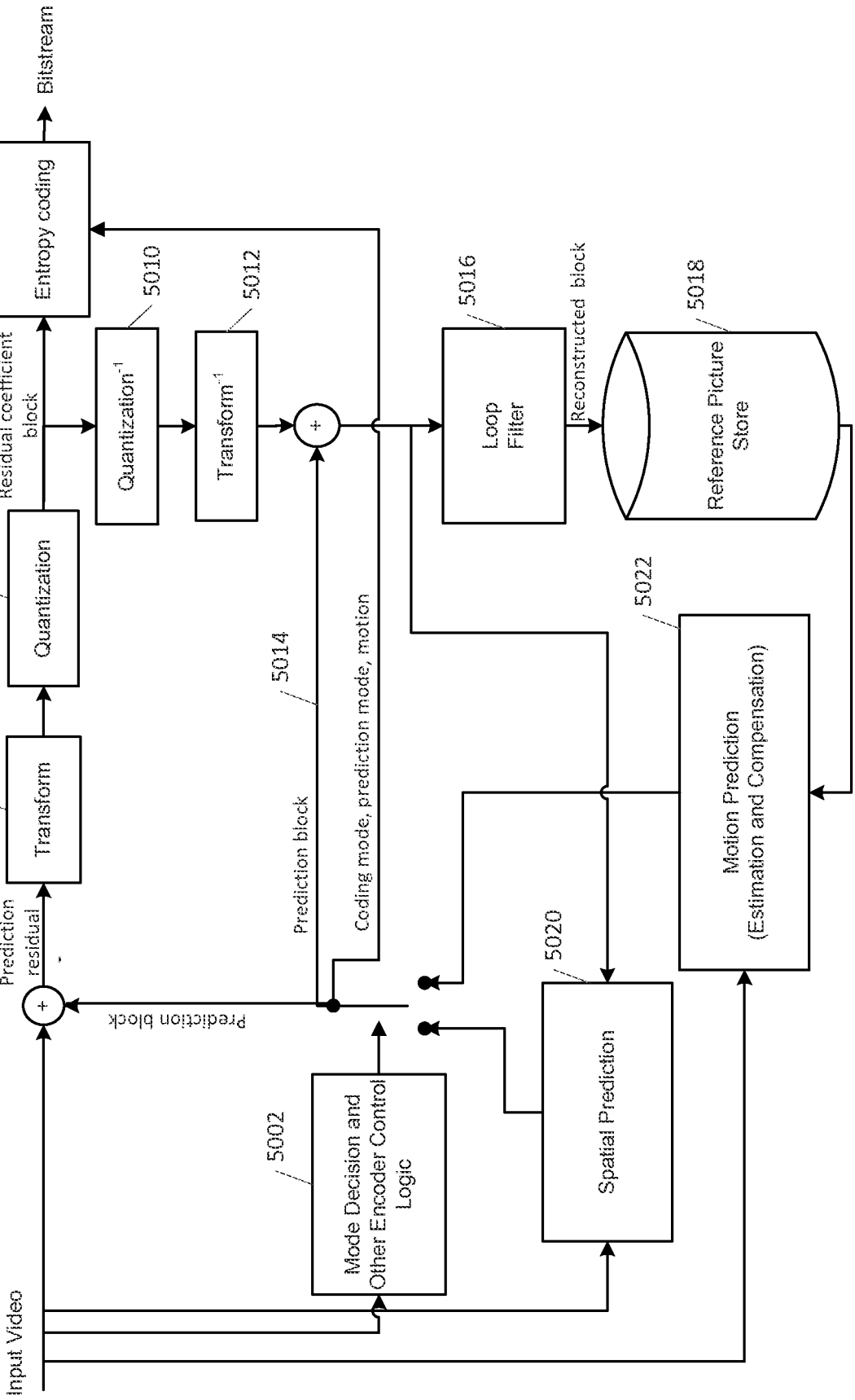
Bitstream
5008
Entropy coding
5010
Quantization^{-1}
5012
Transform^{-1}
5016
Loop Filter
Reconstructed block
5018
Reference Picture Store
Residual coefficient block
5006
Quantization
5004
Transform
Prediction residual
5014
Prediction block
Coding mode, prediction mode, motion
5022
Motion Prediction (Estimation and Compensation)
5020
Spatial Prediction
5002
Mode Decision and Other Encoder Control Logic
Input Video

FIG. 5

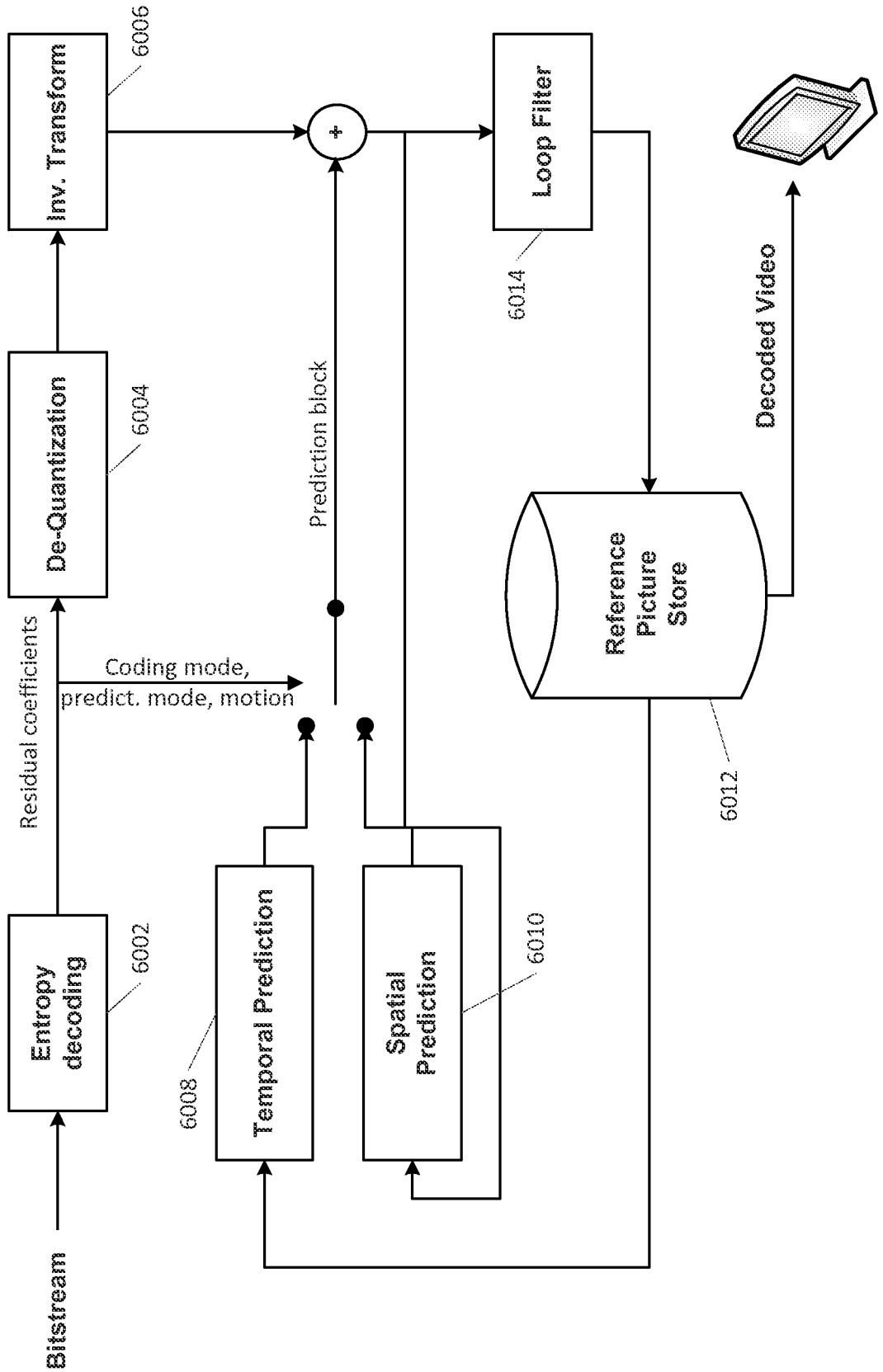
Bitstream
Entropy decoding
6002
Residual coefficients
De-Quantization
6004
Inv. Transform
6006
Coding mode, predict. mode, motion
Prediction block
+
Temporal Prediction
6008
Spatial Prediction
6010
Loop Filter
6014
Reference Picture Store
6012
Decoded Video

FIG. 6

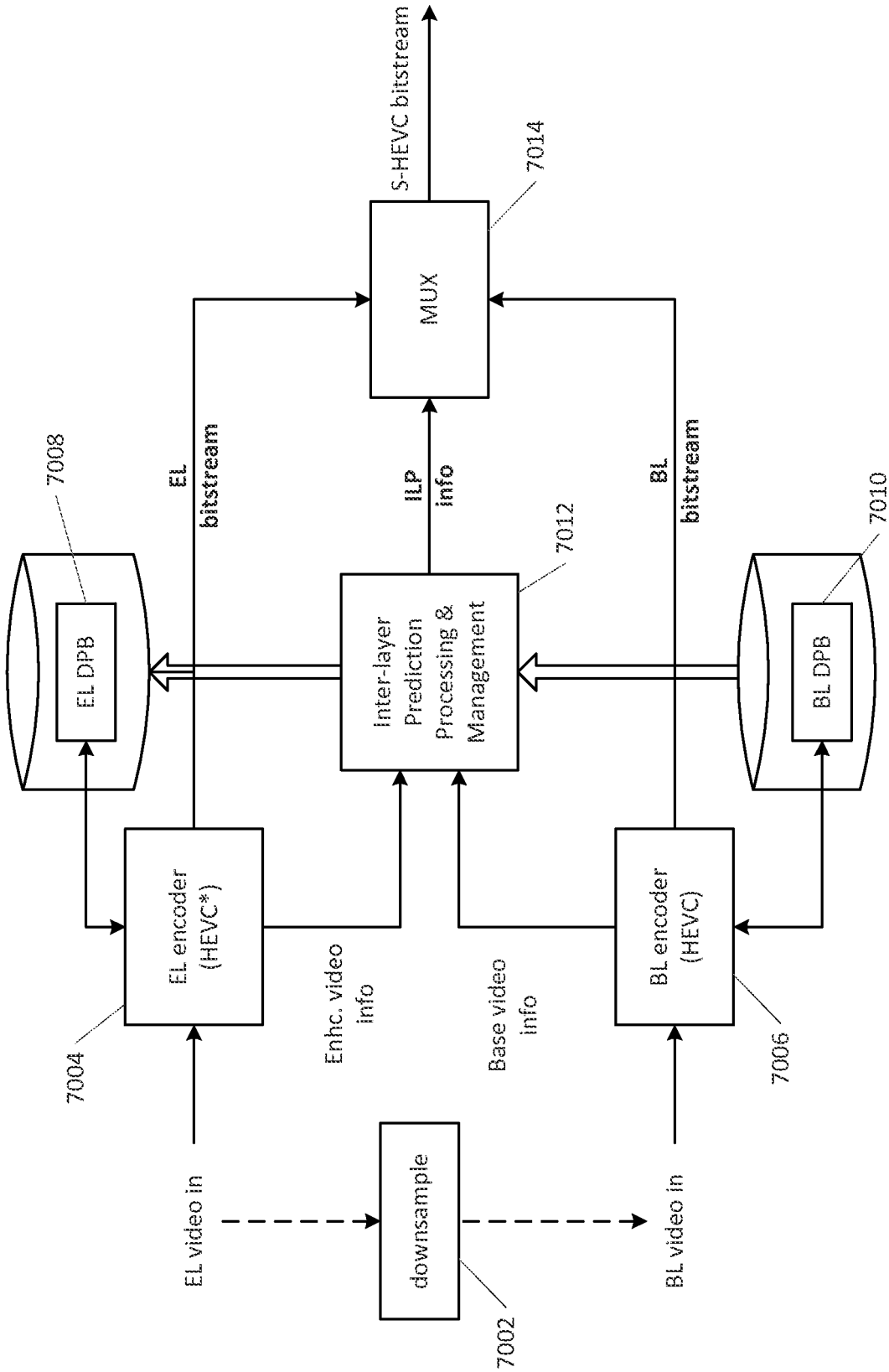
S-HEVC bitstream
7014
MUX
EL bitstream
ILP info
BL bitstream
7008
7012
7010
EL DPB
Inter-layer Prediction Processing & Management
BL DPB
EL encoder (HEVC*)
BL encoder (HEVC)
7004
Enhc. video info
Base video info
7006
EL video in
downsample
BL video in
7002

FIG. 7

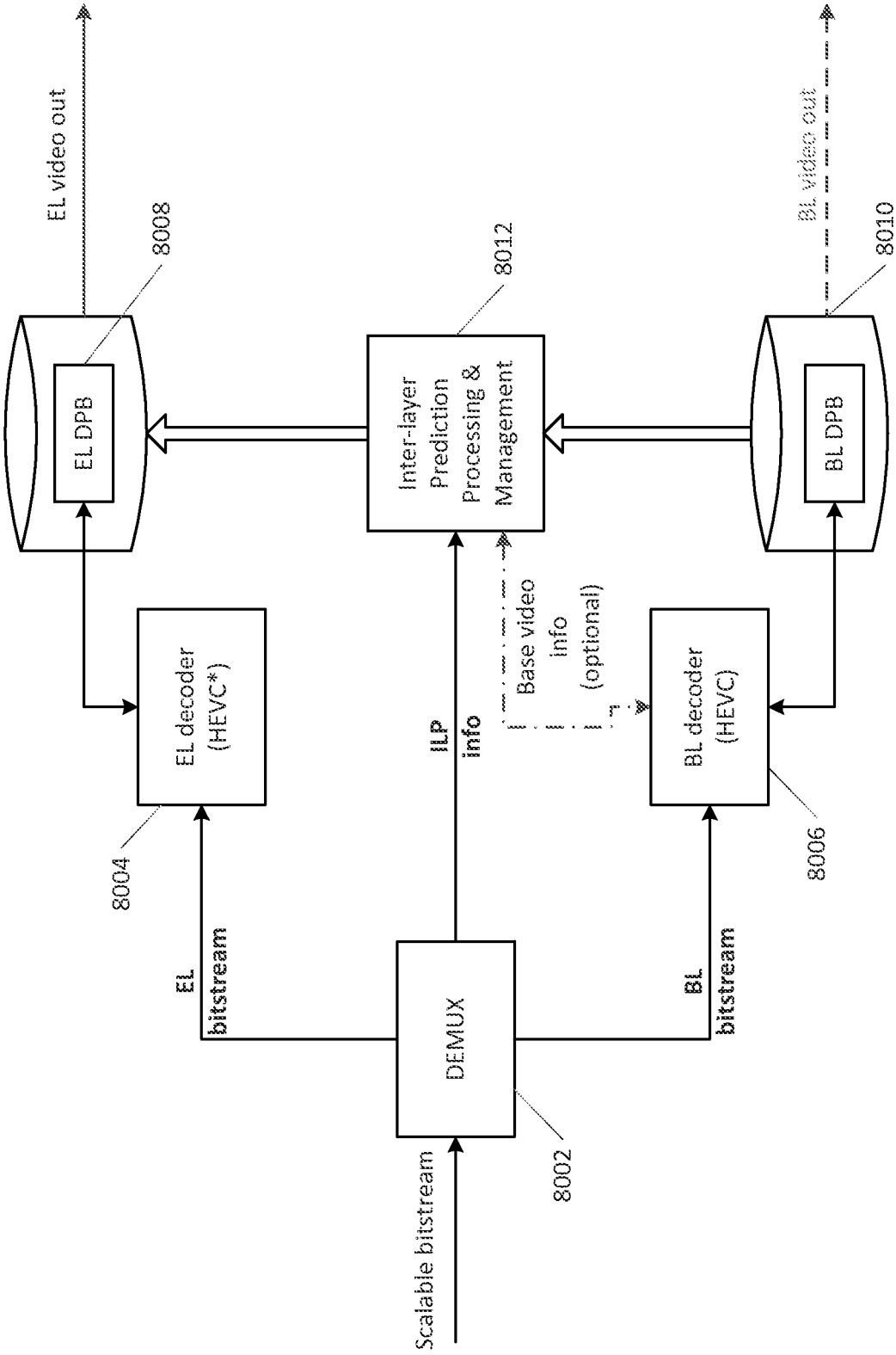
EL video out
8008
EL DPB
8012
Inter-layer Prediction Processing & Management
BL video out
8010
BL DPB
EL decoder (HEVC*)
8004
ILP info
Base video info (optional)
BL decoder (HEVC)
8006
EL bitstream
DEMUX
BL bitstream
Scalable bitstream
8002

FIG. 8

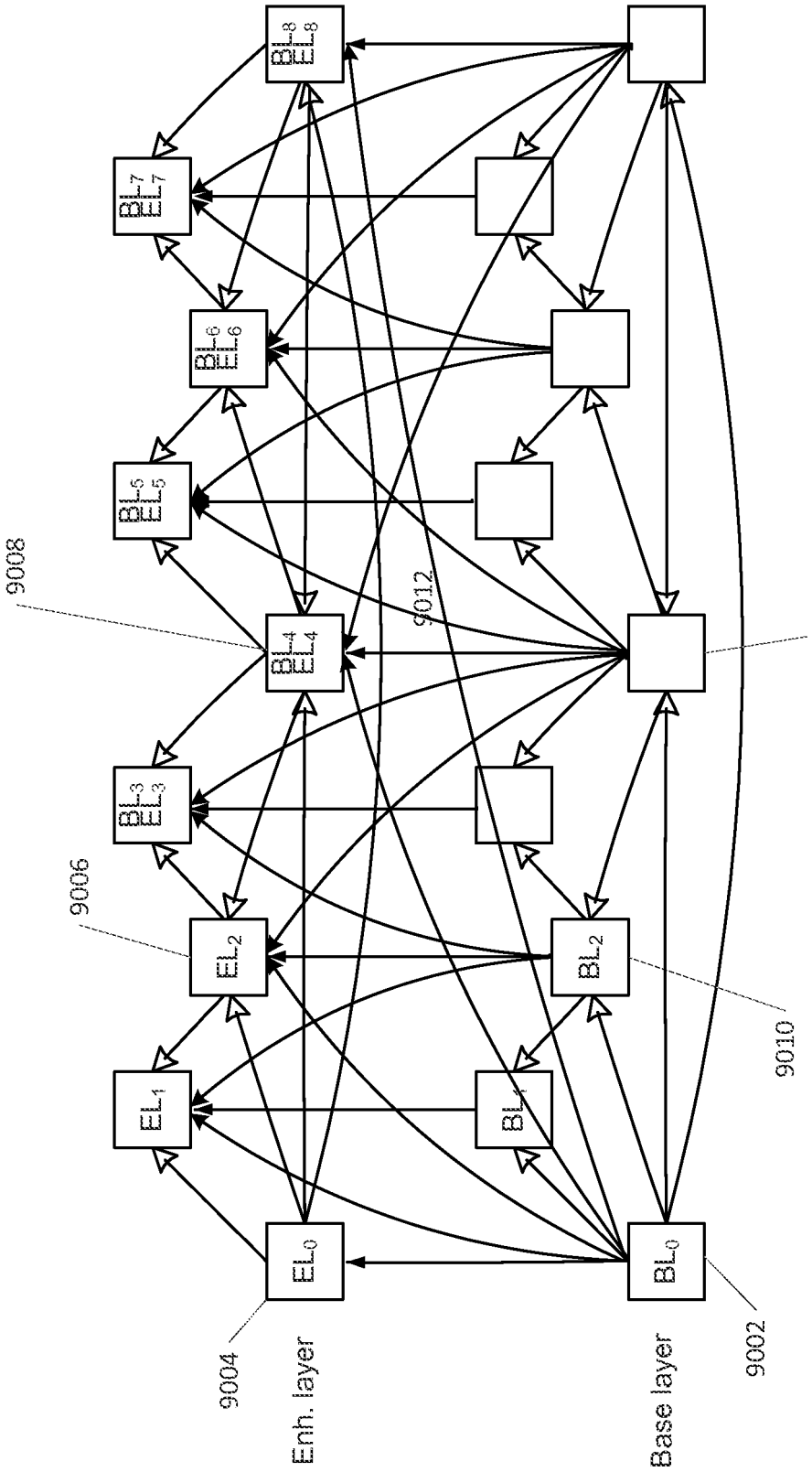

FIG. 9

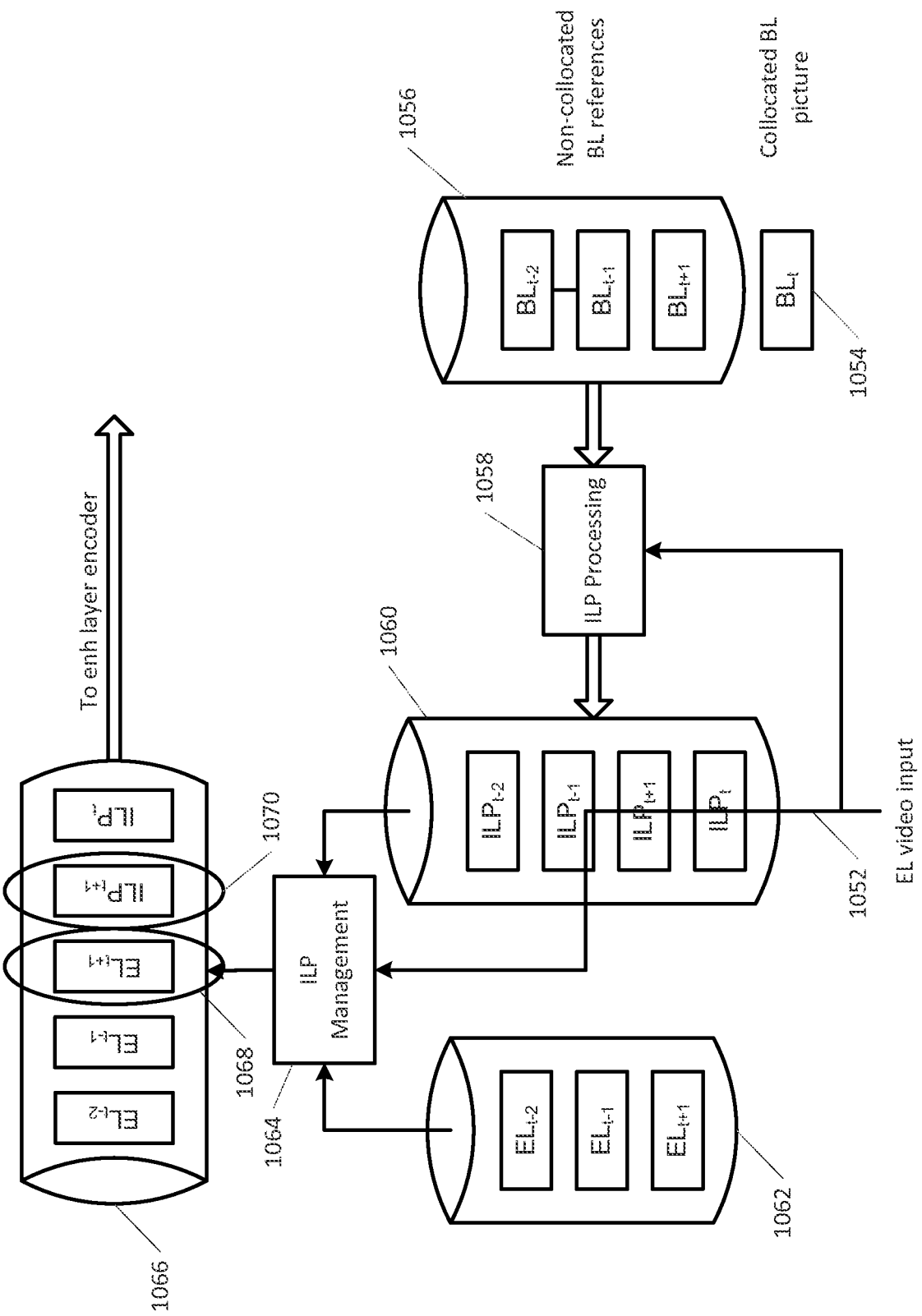
1056
Non-collocated BL references
Collocated BL picture
BL_{t-2}
BL_{t-1}
BL_{t+1}
BL_t
1054
1058
ILP Processing
1060
ILP_{t-2}
ILP_{t-1}
ILP_{t+1}
ILP_t
1052
EL video input
1070
ILP Management
1068
1064
EL_{t-2}
EL_{t-1}
EL_{t+1}
1062
To enh layer encoder
EP_{t-2}
EP_{t-1}
EP_{t+1}
EP_{t+1}
EP_t
1066

FIG. 10

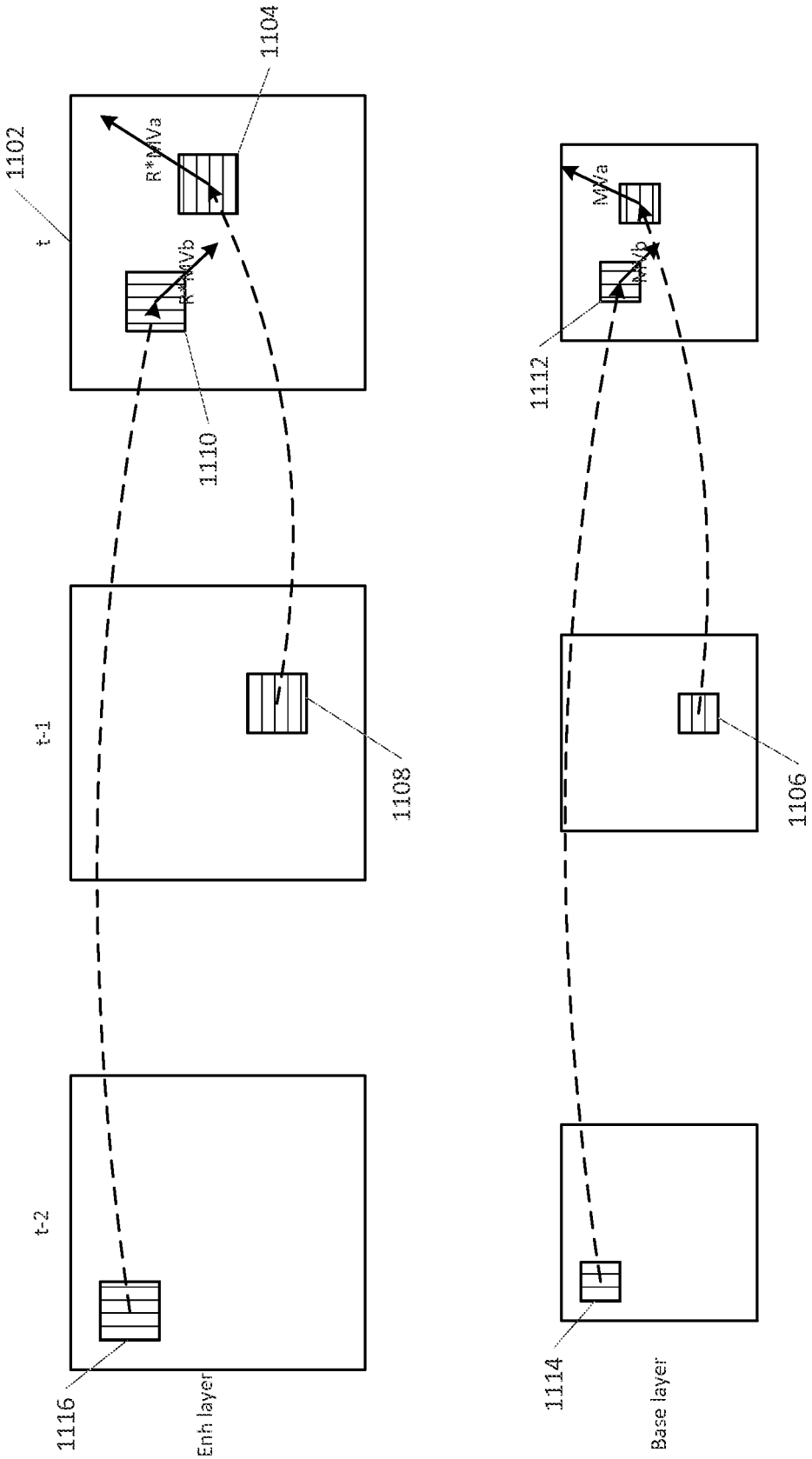
1102
t
1104
R*MVa
R*MVb
1110
t-1
1108
t-2
1116
Enh layer
MVa
MVb
1112
1106
1114
Base layer

FIG. 11

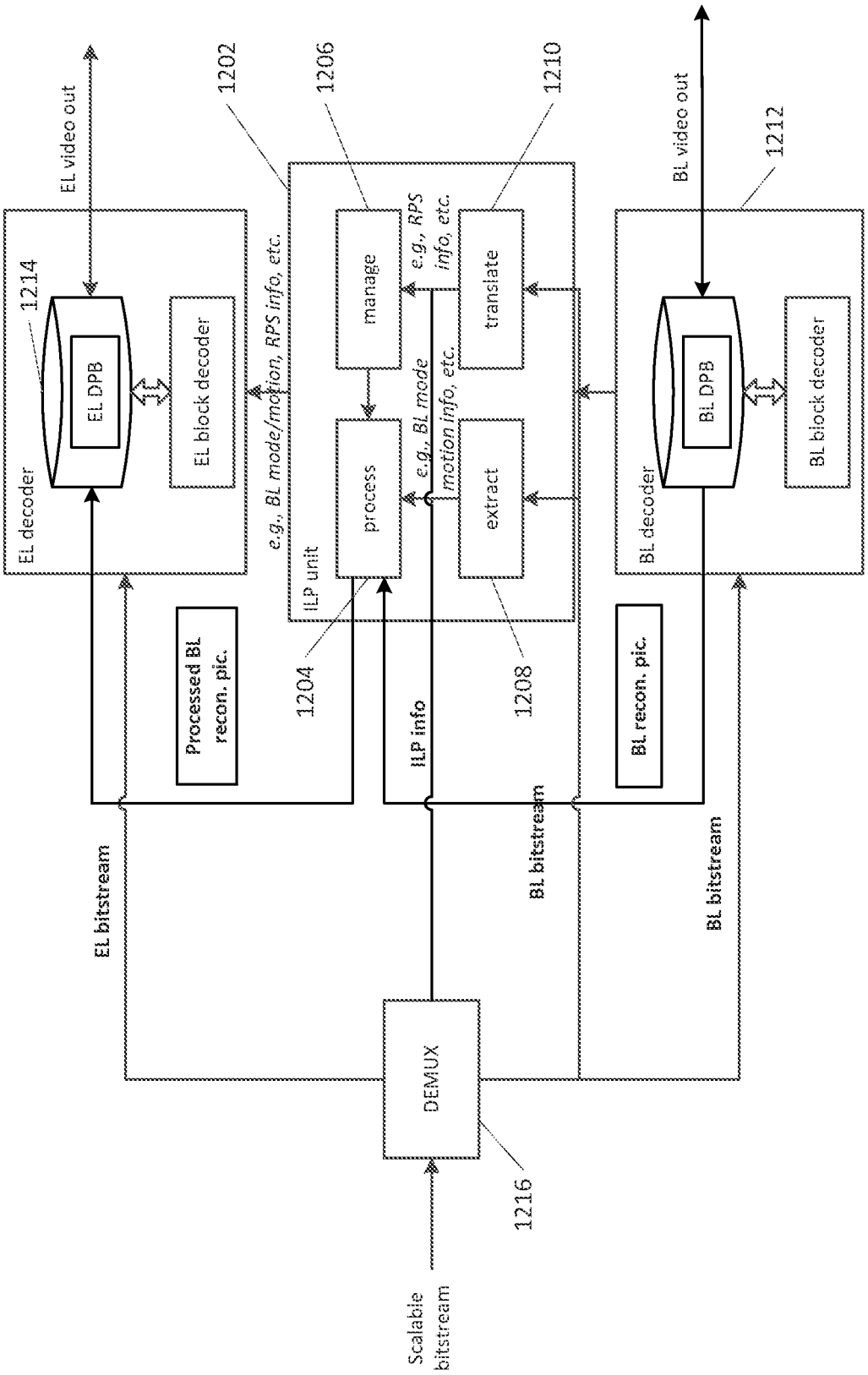
EL video out
1202
1206
1210
BL video out
1212
1214
manage
translate
e.g., RPS info, etc.
EL DPB
EL block decoder
e.g., BL mode/motion, RPS info, etc.
process
extract
e.g., BL mode motion info, etc.
BL DPB
BL block decoder
EL decoder
ILP unit
BL decoder
Processed BL recon. pic.
1204
1208
ILP info
BL recon. pic.
EL bitstream
BL bitstream
BL bitstream
DEMUX
1216
Scalable bitstream

FIG. 12

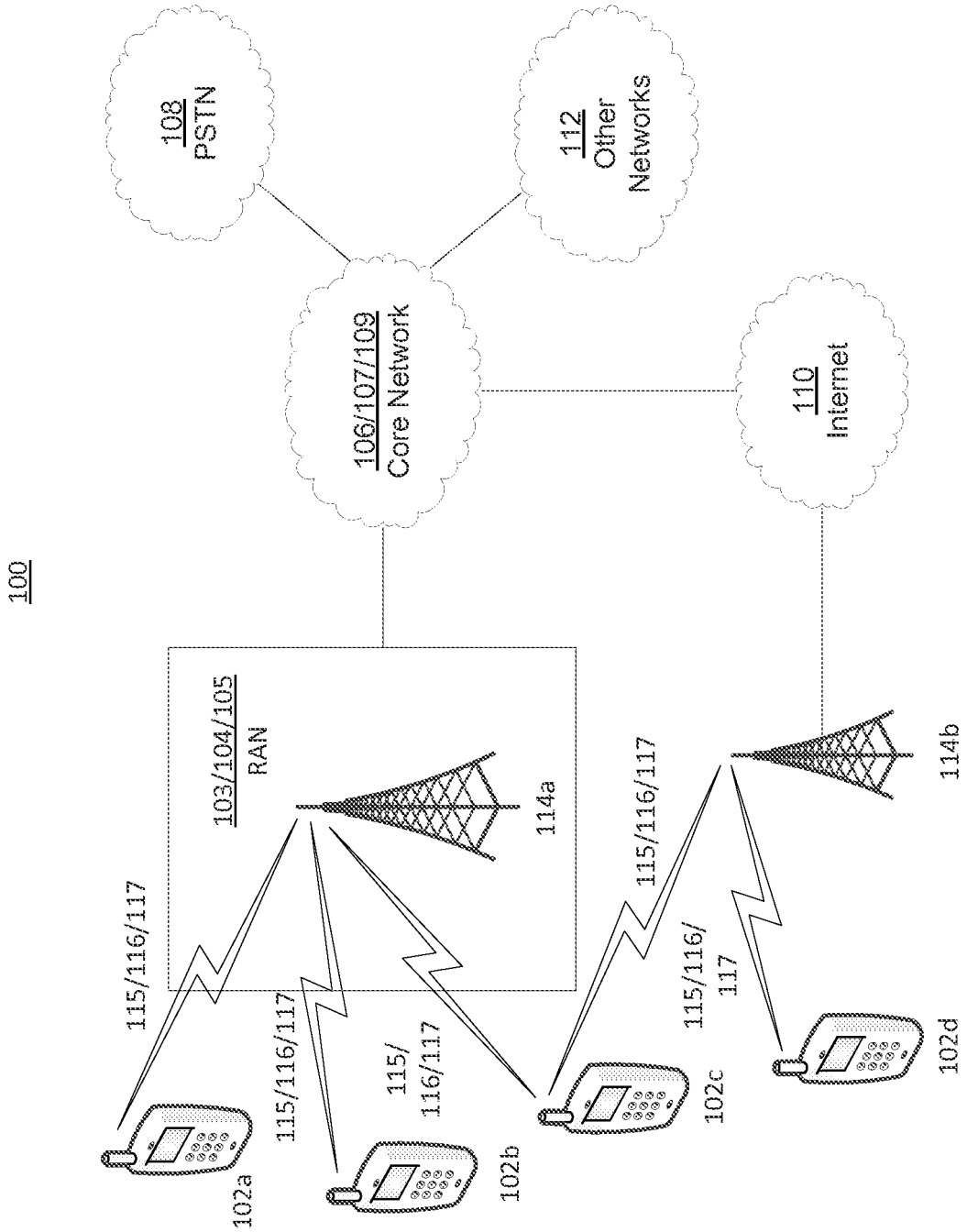
100
108
PSTN
112
Other
Networks
106/107/109
Core Network
110
Internet
103/104/105
RAN
114a
114b
115/116/117
115/116/117
115/
116/117
115/116/117
115/116/
117
102a
102b
102c
102d

FIG. 13A

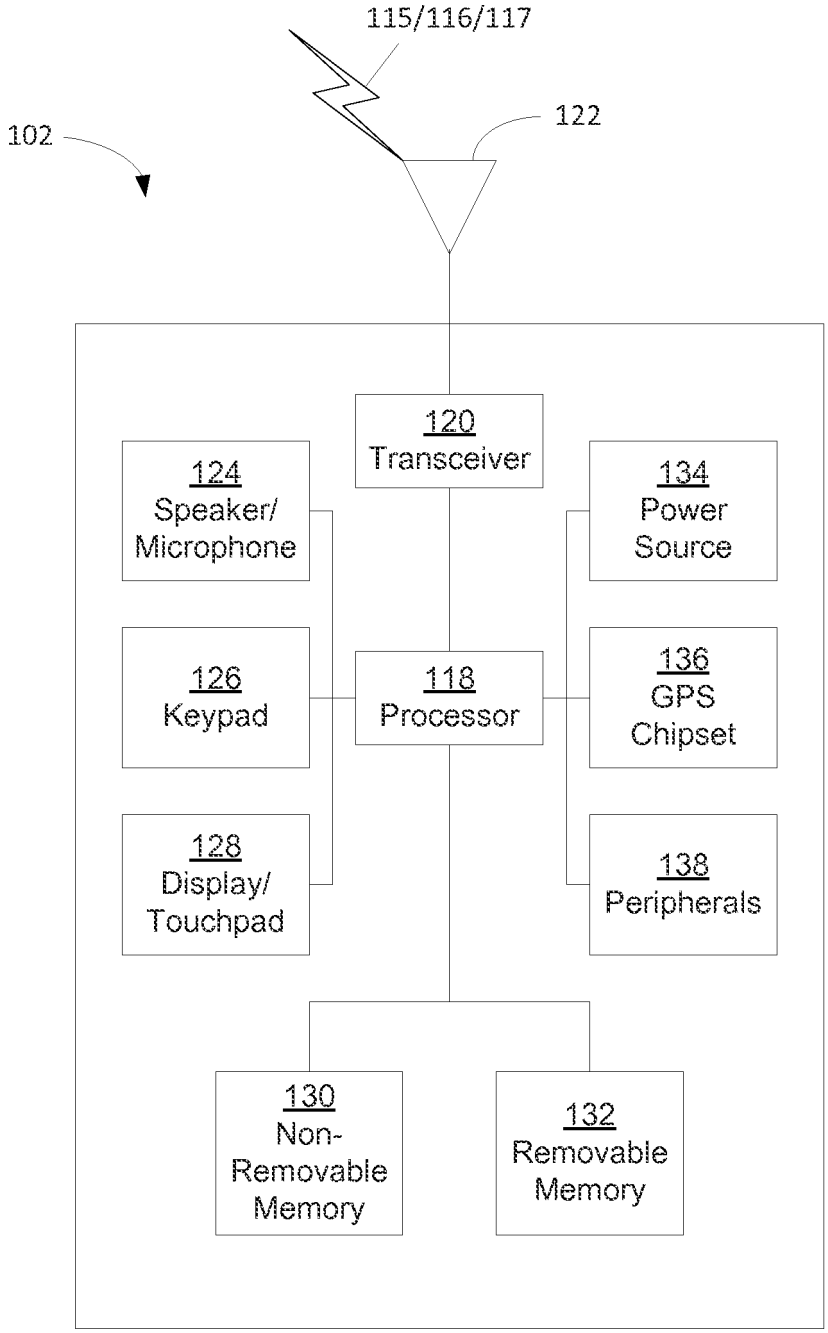
115/116/117
122
102
120
Transceiver
124
Speaker/
Microphone
134
Power
Source
126
Keypad
118
Processor
136
GPS
Chipset
128
Display/
Touchpad
138
Peripherals
130
Non-
Removable
Memory
132
Removable
Memory

FIG. 13B

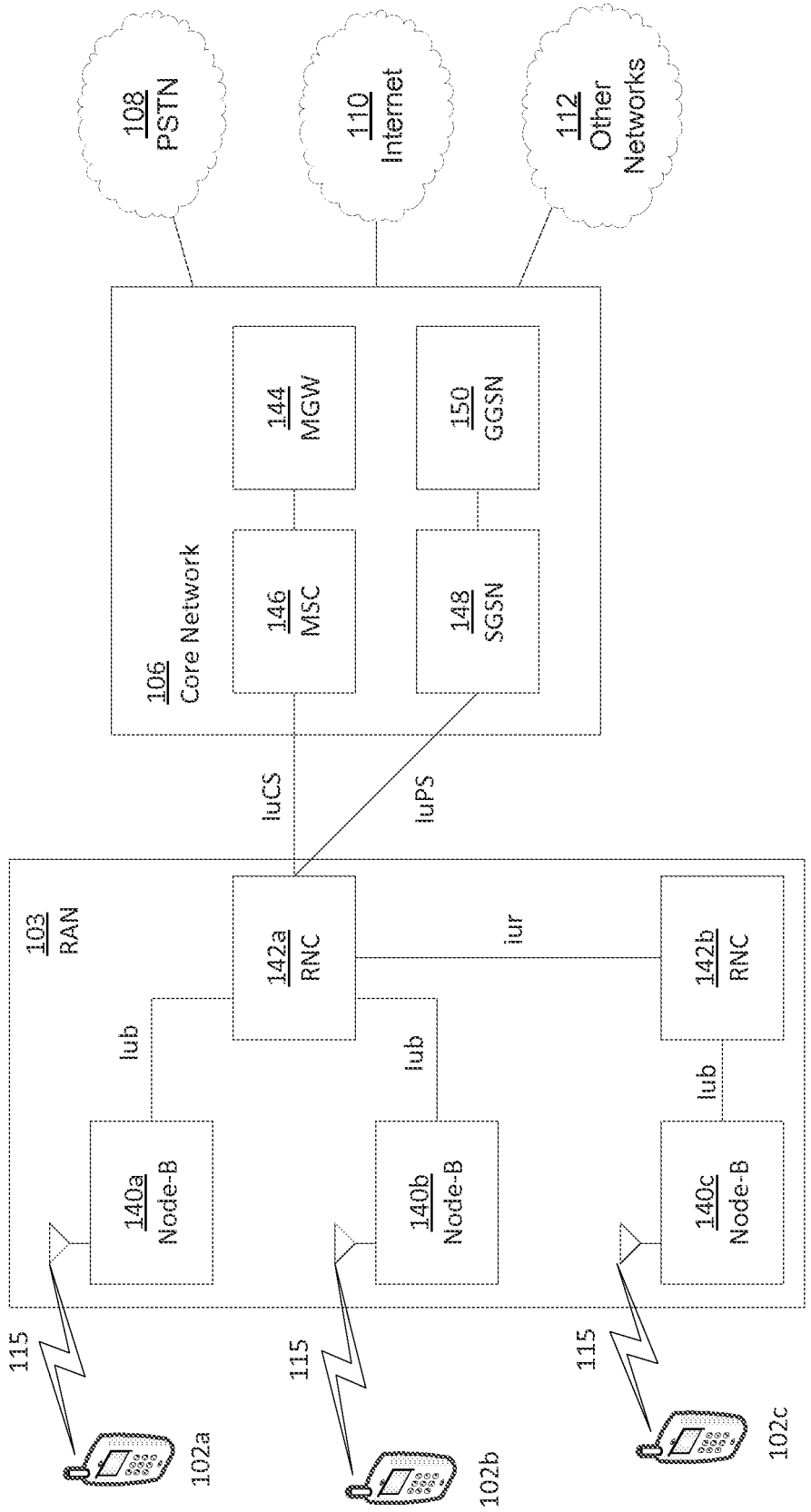
108 PSTN
110 Internet
112 Other Networks
106 Core Network
144 MGW
150 GGSN
146 MSC
148 SGSN
IuCS
IuPS
103 RAN
142a RNC
142b RNC
Iur
Iub
Iub
Iub
140a Node-B
140b Node-B
140c Node-B
115
115
115
102a
102b
102c

FIG. 13C

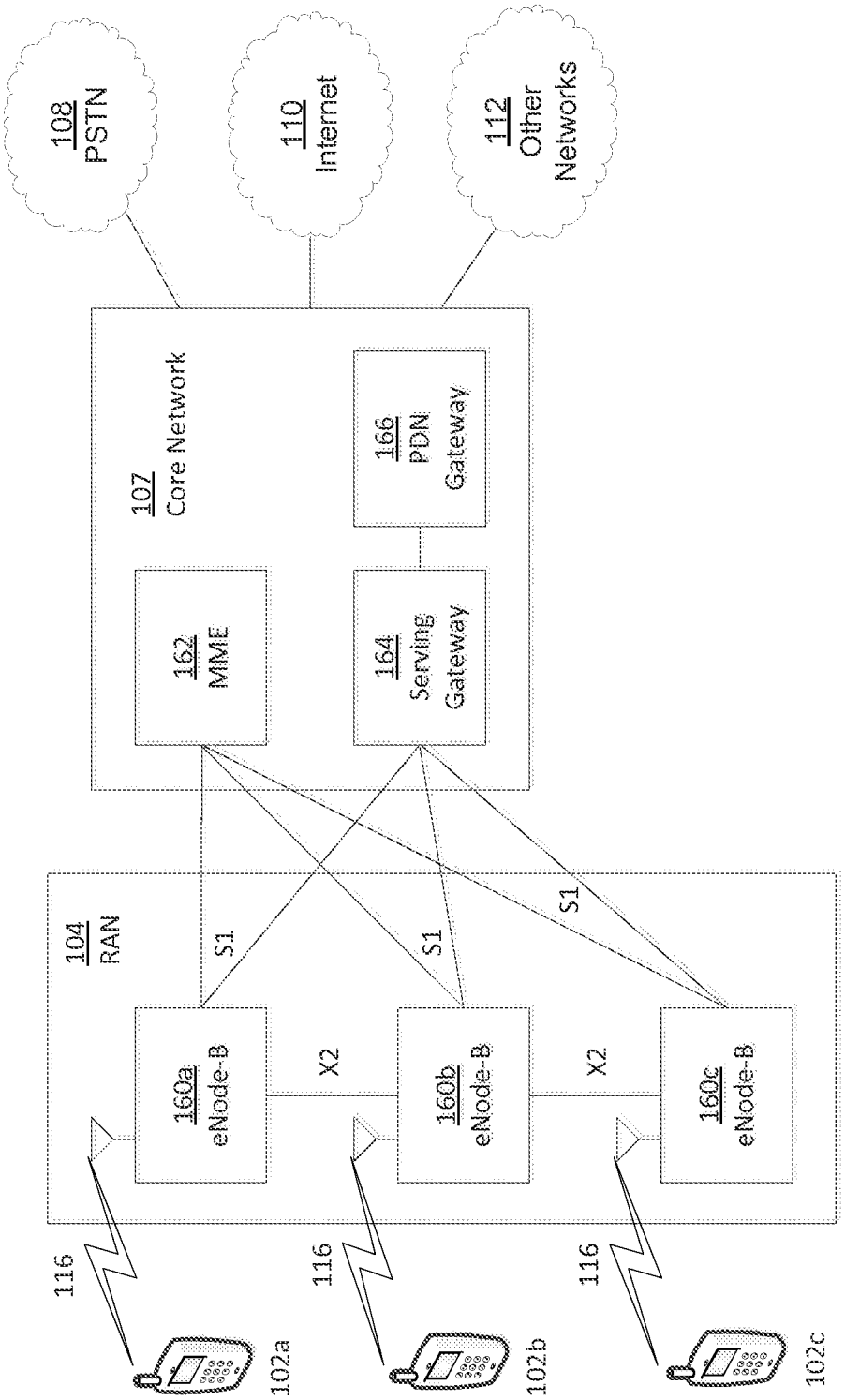
108
PSTN
110
Internet
112
Other
Networks
107
Core Network
166
PDN
Gateway
162
MME
164
Serving
Gateway
104
RAN
S1
S1
S1
160a
eNode-B
160b
eNode-B
160c
eNode-B
X2
X2
116
116
116
102a
102b
102c

FIG. 13D

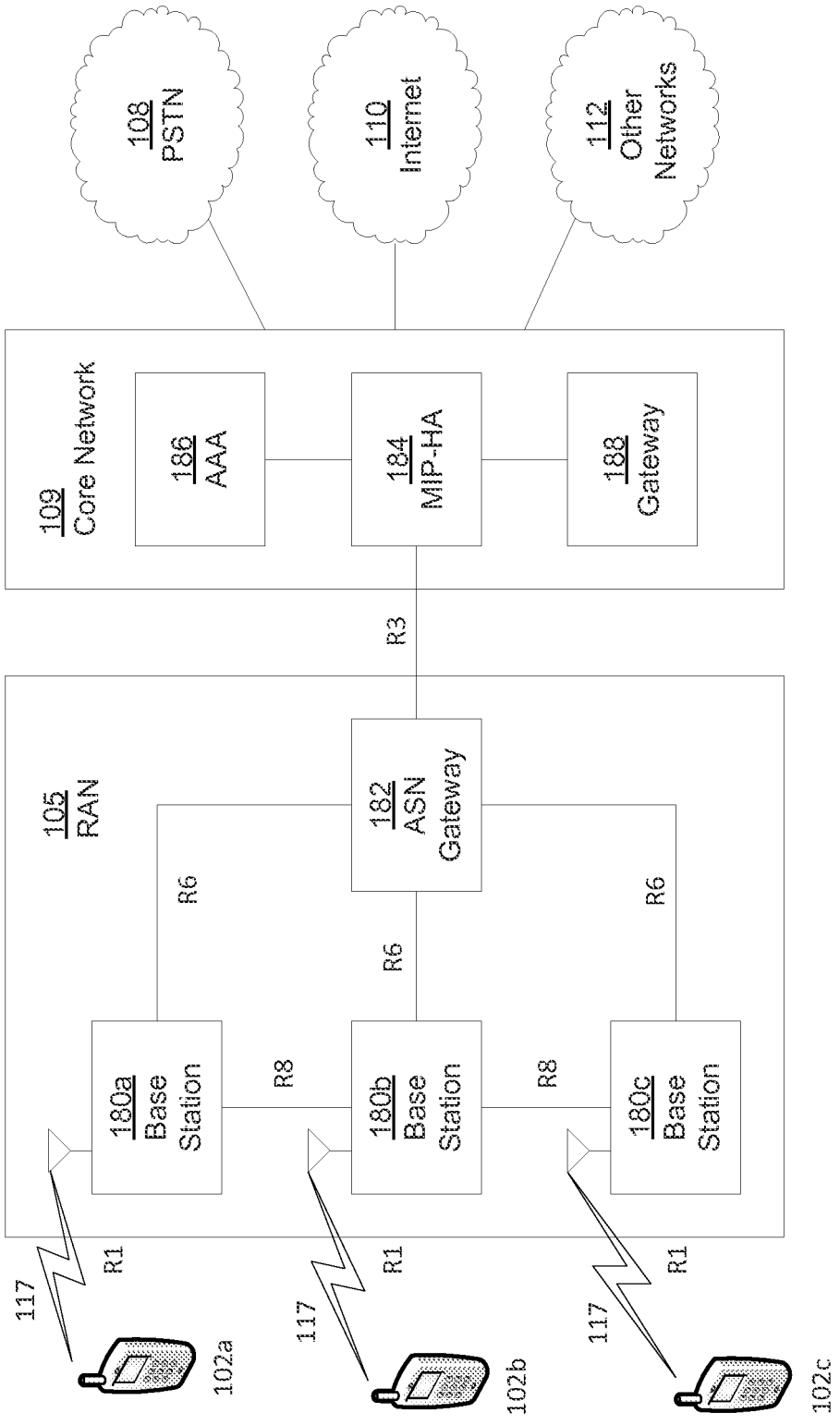
108
PSTN
110
Internet
112
Other
Networks
109
Core Network
186
AAA
184
MIP-HA
188
Gateway
R3
105
RAN
182
ASN
Gateway
R6
R6
R6
180a
Base
Station
180b
Base
Station
180c
Base
Station
R8
R8
R1
R1
R1
117
117
117
102a
102b
102c

FIG. 13E