

CLAIMS

1. A method of video processing, comprising:
performing a conversion between a video comprising a current picture comprising a current subpicture comprising a current slice and a bitstream of the video,
wherein the bitstream conforms to a format rule that disallows an active entry in a reference picture list of the current slice from including a first picture that precedes in a decoding order a second picture that includes a step-wise temporal sublayer access subpicture in response to:
 - (a) the first picture having a same temporal identifier and a same layer identifier of a network abstraction layer (NAL) unit as that of the current subpicture, and
 - (b) the current subpicture following in the decoding order the step-wise temporal sublayer access subpicture, and
 - (c) the current subpicture and the step-wise temporal sublayer access subpicture having the same temporal identifier, the same layer identifier, and a same subpicture index.
2. The method of claim 1, wherein the reference picture list includes a List 0 reference picture list.
3. The method of claim 1, wherein the reference picture list includes a List 1 reference picture list.
4. A method of video processing, comprising:
performing a conversion between a video comprising a current picture comprising a current subpicture comprising a current slice and a bitstream of the video,
wherein the bitstream conforms to a format rule that disallows an active entry in a reference picture list of the current slice from including a first picture that is generated by a decoding process for generating unavailable reference pictures in response to the current subpicture being not of a particular type of subpicture.

5. The method of claim 4, wherein the current subpicture is not a random access skipped leading subpicture associated with a clean random access subpicture of a clean random access picture with a value of a flag that indicates no output before recovery equal to 1.
6. The method of claim 4, wherein the current subpicture is not a gradual decoding refresh subpicture of a gradual decoding refresh picture with a value of a flag that indicates no output before recovery equal to 1.
7. The method of claim 4, wherein the current subpicture is not a subpicture of a recovering picture of a gradual decoding refresh picture with a value of a flag that indicates no output before recovery equal to 1 and having a same layer identifier of a network abstraction layer (NAL) unit as that of the current subpicture.
8. The method of any of claims 4 to 7, wherein the reference picture list includes a List 0 reference picture list.
9. The method of any of claims 4 to 7, wherein the reference picture list includes a List 1 reference picture list.
10. A method of video processing, comprising:
performing a conversion between a video comprising a current picture comprising a current subpicture comprising a current slice and a bitstream of the video,
wherein the bitstream conforms to a format rule that disallows an entry in a reference picture list of the current slice from including a first pictures that is generated by a decoding process for generating unavailable reference pictures in response to the current subpicture being not of a particular type of subpicture.
11. The method of claim 10, wherein the current picture is not a clean random access subpicture of a clean random access picture with a value of a flag that indicates no output before recovery equal to 1.

12. The method of claim 10, wherein the current subpicture is not a subpicture that precedes, in a decoding order, one or more leading subpictures associated with the clean random access subpicture of the clean random access picture with a value of a flag that indicates no output before recovery equal to 1.
13. The method of claim 10, wherein the current subpicture is not a leading subpicture associated with the clean random access subpicture of the clean random access picture with a value of a flag that indicates no output before recovery equal to 1.
14. The method of claim 10, wherein the current subpicture is not a gradual decoding refresh subpicture of a gradual decoding refresh picture with a value of a flag that indicates no output before recovery equal to 1.
15. The method of claim 10, wherein the current subpicture is not a subpicture of a recovering picture of a gradual decoding refresh picture with a value of a flag that indicates no output before recovery equal to 1 and having a same layer identifier of a network abstraction layer (NAL) unit as that of the current subpicture.
16. The method of any of claim 10 to 15, wherein the reference picture list includes a List 0 reference picture list.
17. The method of any of claim 10 to 15, wherein the reference picture list includes a List 1 reference picture list.
18. A method of video processing, comprising:
performing a conversion between a video comprising a current picture comprising a current subpicture comprising a current slice and a bitstream of the video,
wherein the bitstream conforms to a format rule that disallows an entry in a reference picture list of the current slice from including a first picture that precedes in a first order or a second order the current picture in response to:
(a) the first picture including a preceding intra random access point subpicture that

precedes in the second order the current subpicture,

(b) the preceding intra random access point subpicture having a same layer identifier of a network abstraction layer (NAL) unit and a same subpicture index as that of the current subpicture, and

(c) the current subpicture being a clean random access subpicture.

19. The method of claim 18, wherein the first order includes an output order.

20. The method of claim 18, wherein the second order includes a decoding order.

21. The method of any of claim 18 to 20, wherein the reference picture list includes a List 0 reference picture list.

22. The method of any of claim 18 to 20, wherein the reference picture list includes a List 1 reference picture list.

23. A method of video processing, comprising:

performing a conversion between a video comprising a current picture comprising a current subpicture comprising a current slice and a bitstream of the video,

wherein the bitstream conforms to a format rule that disallows an active entry in a reference picture list of the current slice from including a first picture that precedes in a first order or a second order the current picture in response to:

(a) the current subpicture being associated with an intra random access point subpicture,

(b) the current subpicture following the intra random access point subpicture in the first order.

24. The method of claim 23, wherein the first order includes an output order.

25. The method of claim 23, wherein the second order includes a decoding order.

26. The method of any of claim 23 to 25, wherein the reference picture list includes a List 0 reference picture list.
27. The method of any of claim 23 to 25, wherein the reference picture list includes a List 1 reference picture list.
28. A method of video processing, comprising:
performing a conversion between a video comprising a current picture comprising a current subpicture comprising a current slice and a bitstream of the video,
wherein the bitstream conforms to a format rule that disallows an entry in a reference picture list of the current slice from including a first picture that precedes in a first order or the second order the current picture that includes an intra random access point subpicture associated with the current subpicture in response to:
(a) the current subpicture following the intra random access point subpicture in the first order,
(b) the current subpicture follows one or more leading subpictures associated with the IRAP subpicture in the first order and the second order.
29. The method of claim 28, wherein the first order includes an output order.
30. The method of claim 28, wherein the second order includes a decoding order.
31. The method of any of claim 28 to 30, wherein the reference picture list includes a List 0 reference picture list.
32. The method of any of claim 28 to 30, wherein the reference picture list includes a List 1 reference picture list.
33. A method of video processing, comprising:
performing a conversion between a video comprising a current picture comprising a current subpicture comprising a current slice and a bitstream of the video,

wherein the bitstream conforms to a format rule that specifies that in response to the current subpicture being a random access decodable leading subpicture, a reference picture list of the current slice excludes an active entry for any one or more of:

a first picture that includes a random access skipped leading subpicture, and

a second picture that precedes a third picture that includes an associated intra random access point subpicture in a decoding order.

34. The method of claim 33, wherein the reference picture list includes a List 0 reference picture list.

35. The method of claim 33, wherein the reference picture list includes a List 1 reference picture list.

36. The method of any of claims 1 to 35, wherein the performing the conversion comprising encoding the video into the bitstream.

37. The method of any of claims 1 to 35, wherein the performing the conversion comprises generating the bitstream from the video, and the method further comprises storing the bitstream in a non-transitory computer-readable recording medium.

38. The method of any of claims 1 to 35, wherein the performing the conversion comprises decoding the video from the bitstream.

39. A video decoding apparatus comprising a processor configured to implement a method recited in one or more of claims 1 to 38.

40. A video encoding apparatus comprising a processor configured to implement a method recited in one or more of claims 1 to 38.

41. A computer program product having computer instructions stored thereon, the instructions, when executed by a processor, causes the processor to implement a method recited in any of claims 1 to 38.
42. A non-transitory computer-readable storage medium that stores a bitstream generated according to the method in any one of claims 1 to 38.
43. A non-transitory computer-readable storage medium storing instructions that cause a processor to implement a method recited in any of claims 1 to 38.
44. A method of bitstream generation, comprising:
generating a bitstream of a video according to a method recited in any of claims 1 to 38,
and
storing the bitstream on a computer-readable program medium.
45. A method, an apparatus, a bitstream generated according to a disclosed method or a system described in the present document.