

CLAIMS

1. A method of video processing, comprising:
performing a conversion between a video comprising one or more pictures comprising one or more subpictures and a bitstream of the video,
wherein the bitstream conforms to a format rule that specifies that a trailing subpicture that is associated with an intra random access point subpicture or a gradual decoding refresh subpicture follows the intra random access point subpicture or the gradual decoding refresh subpicture in an order.
2. The method of claim 1, wherein the order is an output order.
3. A method of video processing, comprising:
performing a conversion between a video comprising one or more pictures comprising one or more subpictures and a bitstream of the video,
wherein the bitstream conforms to a format rule that specifies that a subpicture precedes in a first order an intra random access point subpicture and one or more random access decodable leading subpictures associated with the intra random access point subpicture in response to:
 - (1) the subpicture preceding the intra random access point subpicture in a second order,
 - (2) the subpicture and the intra random access point subpicture having a same first value for a layer to which a network abstraction layer (NAL) unit of the subpicture and the intra random access point subpicture belong, and
 - (3) the subpicture and the intra random access point subpicture having a same second value of a subpicture index.
4. The method of claim 3, wherein the first order is an output order.
5. The method of claim 3, wherein the second order is a decoding order.

6. A method of video processing, comprising:
performing a conversion between a video comprising one or more pictures comprising one or more subpictures and a bitstream of the video,
wherein the bitstream conforms to a format rule that specifies that a random access skipped leading subpicture associated with a clean random access subpicture precedes in an order one or more random access decodable leading subpictures associated with the clean random access subpicture.
7. The method of claim 6, wherein the order is an output order.
8. A method of video processing, comprising:
performing a conversion between a video comprising one or more pictures comprising one or more subpictures and a bitstream of the video,
wherein the bitstream conforms to a format rule that specifies that a random access skipped leading subpicture associated with a clean random access subpicture follows in a first order one or more intra random access point subpictures that precede the clean random access subpicture in a second order.
9. The method of claim 7, wherein the first order is an output order.
10. The method of claim 7, wherein the second order is a decoding order.
11. A method of video processing, comprising:
performing a conversion between a video comprising one or more pictures comprising one or more subpictures and a bitstream of the video,
wherein the bitstream conforms to a format rule that specifies that a current subpicture precedes in a decoding order one or more non-leading subpictures associated with an intra random access point subpicture in response to:
(1) a syntax element indicating that a coded layer video sequence conveys pictures that represent frames, and

(2) the current subpicture being a leading subpicture associated with the intra random access point subpicture.

12. The method of claim 11,

wherein in response to (1) the syntax element indicating that the coded layer video sequence conveys pictures that represent fields, and (2) the current subpicture is not the leading subpicture, the format rule specifies:

a presence of at most one non-leading subpicture preceding a first leading subpicture associated with the intra random access point subpicture in the decoding order, and

an absence of a non-leading picture in between the first leading subpicture and a last leading subpicture associated with the intra random access point subpicture in the decoding order,

wherein the current subpicture, the at most one non-leading subpicture, and the non-leading picture have a same first value for a layer to which a network abstraction layer (NAL) unit of the current subpicture, the at most one non-leading subpicture, and the non-leading picture belong, and

wherein the current subpicture, the at most one non-leading subpicture, and the non-leading picture having a same second value of a subpicture index.

13. A method of video processing, comprising:

performing a conversion between a video comprising one or more pictures comprising one or more subpictures and a bitstream of the video,

wherein the bitstream conforms to a format rule that specifies that one or more types of network abstraction layer (NAL) unit for all video coding layer (VCL) NAL units in a picture includes RADL_NUT or RASL_NUT in response to the picture being a leading picture of an intra random access point picture.

14. The method of claim 13, wherein the format rule specifies that a variable of the picture is set equal to a value of a picture output flag in response to:

(1) the one or more types of NAL unit for all VCL NAL units in the picture includes

RADL_NUT and RASL_NUT, and

(2) a layer including the picture being an output layer.

15. A method of video processing, comprising:

performing a conversion between a video comprising one or more pictures comprising a plurality of subpictures and a bitstream of the video,

wherein the bitstream conforms to a format rule that specifies that at least one subpicture precedes in a first order a gradual decoding refresh subpicture and one or more subpictures associated with the gradual decoding refresh subpicture in response to:

(1) the at least subpicture preceding the gradual decoding refresh subpicture in a second order,

(2) the at least one subpicture and the gradual decoding refresh subpicture having a same first value for a layer to which a network abstraction layer (NAL) unit of the at least one subpicture and the gradual decoding refresh subpicture belong, and

(3) the at least one subpicture and the gradual decoding refresh picture having a same second value of a subpicture index.

16. The method of claim 15, wherein the first order is an output order.

17. The method of claim 15, wherein the second order is a decoding order.

18. The method of any of claims 1 to 17, wherein the performing the conversion comprising encoding the video into the bitstream.

19. The method of any of claims 1 to 17, 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.

20. The method of any of claims 1 to 17, wherein the performing the conversion comprises decoding the video from the bitstream.

21. A video decoding apparatus comprising a processor configured to implement a method recited in one or more of claims 1 to 20.
22. A video encoding apparatus comprising a processor configured to implement a method recited in one or more of claims 1 to 20.
23. 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 20.
24. A non-transitory computer-readable storage medium that stores a bitstream generated according to the method in any one of claims 1 to 20.
25. A non-transitory computer-readable storage medium storing instructions that cause a processor to implement a method recited in any of claims 1 to 20.
26. A method of bitstream generation, comprising:
generating a bitstream of a video according to a method recited in any of claims 1 to 20,
and
storing the bitstream on a computer-readable program medium.
27. A method, an apparatus, a bitstream generated according to a disclosed method or a system described in the present document.