

CLAIMS

1. A method of video processing, comprising:
performing a conversion between a video comprising one or more pictures and a bitstream of the video;
wherein the bitstream conforms to a format rule;
wherein the format rule specifies that one or more syntax elements indicative of coding information are selectively included in a picture parameter set of the bitstream responsive to whether it is indicated that each picture referring to the picture parameter set comprises a single slice.
2. The method of claim 1, wherein the one or more syntax elements include six flags that are indicative of whether certain coding syntax elements are included either in the picture header syntax structure or directly in the slice header.
3. The method of claim 2, wherein the six flags include a first flag indicative of whether reference picture list information is included either in the picture header syntax structure or directly in the slice header.
4. The method of claim 3, wherein the format rule further specifies that the value of the first flag is inferred to be equal to 0 in case that the first flag is not present in the picture parameter set.
5. The method of claims 2 to 4, wherein the six flags include a second flag indicative of whether deblocking filter information is included either in the picture header syntax structure or directly in the slice header.
6. The method of claim 5, wherein the format rule further specifies that the value of the second flag is inferred to be equal to 0 in case that the second flag is not present in the picture parameter set.

7. The method of any of claims 2 to 6, wherein the six flags include a third flag indicative of whether sample adaptive offset filter information is included either in the picture header syntax structure or directly in the slice header.
8. The method of claim 7, wherein the format rule further specifies that the value of the third flag is inferred to be equal to 0 in case that the third flag is not present in the picture parameter set.
9. The method of any of claims 2 to 8, wherein the six flags include a fourth flag indicative of whether adaptive loop filter information is included either in the picture header syntax structure or directly in the slice header.
10. The method of claim 9, wherein the format rule further specifies that the value of the fourth flag is inferred to be equal to 0 in case that the fourth flag is not present in the picture parameter set.
11. The method of any of claims 2 to 10, wherein the six flags include a fifth flag indicative of whether weighted prediction information is included either in the picture header syntax structure or directly in the slice header.
12. The method of claim 11, wherein the format rule further specifies that the value of the fifth flag is inferred to be equal to 0 in case that the fifth flag is not present in the picture parameter set.
13. The method of any of claims 2 to 12, wherein the six flags include a sixth flag indicative of whether quantization parameter delta information is included either in the picture header syntax structure or directly in the slice header.
14. The method of claim 13, wherein the format rule further specifies that the value of the sixth flag is inferred to be equal to 0 in case that the sixth flag is not present in the picture parameter set.

15. The method of any of claims 1 to 14, wherein the at least one flags include a seventh flag that indicates whether in-loop filtering operations across slice boundaries are enabled for pictures referring to the picture parameter set.
16. The method of claim 15, wherein the format rule further specifies that the value of the seventh flag is inferred to be equal to 0 in case that the seventh flag is not present in the picture parameter set.
17. The method of any of claims 1 to 16, wherein the format rule further specify to omit the one or more syntax elements in case that it is indicated that each picture referring to the picture parameter set comprises the single slice.
18. The method of claim 17, wherein the format rule further specifies to include an indication indicating whether each picture referring to the picture parameter set has only one slice in the picture parameter set.
19. The method of claim 17, wherein the format rule further specifies to include an indication indicating whether each picture referring to the picture parameter set has only one intra slice in the picture parameter set.
20. The method of claim 17, wherein the format rule further specifies to include an indication indicating whether each picture referring to the picture parameter set has only one inter slice in the picture parameter set.
21. The method of claim 1, wherein the format rule further specifies that an indication indicating whether each picture referring to the picture parameter set has only one slice corresponds to a flag included in the picture parameter set.

22. The method of claim 21, wherein the flag having a value of 1 specifies that each picture referring to the picture parameter set has only one slice and the flag having a value of 0 specifies that each picture referring to the picture parameter set has more than one slices.
23. The method of claim 21, wherein the format rule further specifies to omit the indication and infer the indication from a slice partitioning information included in the picture parameter set.
24. The method of claim 21, wherein the format rule further specifies that the indication is equal to 0 in case another indication indicating whether there is only one subpicture in each picture is greater than 0.
25. The method of claim 21, wherein the format rule further specifies that the flag is same for all picture parameter sets referenced by the one or more pictures in a coded layer video sequence.
26. The method of claim 21, wherein the format rule further specifies that the flag is equal to 1 in case that `one_slice_per_pic_constraint_flag` is equal to 1.
27. The method of claim 21, wherein the format rule further specifies to update semantics of `one_slice_per_pic_constraint_flag` by adding that `one_slice_per_pic_constraint_flag` equal to 1 specifies that the flag is equal to 1.
28. The method of claim 21, wherein the format rule further specifies to omit the flag in case that it is known from the picture parameter set that there is only one subpicture in each picture and that each subpicture contains only one slice.
29. The method of claim 17, wherein the format rule further specifies that values of the one or more syntax elements are inferred to be equal to 0 or 1 in case that it is indicated that each picture referring to the picture parameter set comprises the single slice.

30. The method of claim 17, wherein the one or more syntax elements include an eighth flag (`wp_info_in_ph_flag`) indicative of whether weighted prediction information is included in the picture header syntax structure and wherein the format rule further specifies, in case that it is indicated that each picture referring to the picture parameter set comprises the single slice, i) a value of each of other syntax elements than `wp_info_in_ph_flag` is inferred to be equal to either 1 or 0 and ii) a value of `wp_info_in_ph_flag` is inferred to be equal to 0 in case that a value of a ninth flag (`rpl_info_in_ph_flag`) indicative of whether reference picture list information is included in the picture header syntax structure is equal to 0 and is inferred to be either 1 or 0 in case that the value of `rpl_info_in_ph_flag` is equal to 1.

31. The method of claim 1, wherein the format rule further specifies, in case that it is indicated that each picture referring to the picture parameter set comprises the single slice, to omit a picture header in a slice header flag in a slice header syntax structure in case that it is indicated that each picture referring to the picture parameter set comprises the single slice and infer that a value of the picture header is equal to 1.

32. The method of claim 1, wherein the format rule further specifies, in case that it is indicated that each picture referring to the picture parameter set comprises the single slice, to omit a slice address parameter in a slice header syntax structure.

33. The method of claim 32, wherein the format rule further specifies that a value of the slice address parameter is inferred to be equal to 0 in case i) that it is indicated that each picture referring to the picture parameter set comprises the single slice and ii) that `rect_slice_flag` is equal to 0.

34. The method of claim 1, wherein the format rule further specifies to omit a parameter indicative of a number of tiles in a slice in case that it is indicated that each picture referring to the picture parameter set comprises the single slice.

35. The method of claim 34, wherein the format rule further specifies that a value of the parameter is inferred to be equal to '`NumTilesInPic - 1`' in case i) that it is indicated that each

picture referring to the picture parameter set comprises the single slice and ii) that `rect_slice_flag` is equal to 0, the `NumTilesInPic` indicating a number of tiles in a picture.

36. The method of claim 1, wherein the format rule further specifies that a value of the one or more syntax elements is to be equal to 0 in case that `one_slice_per_pic_constraint_flag` is equal to 1.

37. The method of claim 1, wherein the format rule further specifies that a value of a picture header in a slice header flag is equal to 1 in case that `one_slice_per_pic_constraint_flag` is equal to 1.

38. The method of claim 1, wherein the format rule further specifies to omit `rect_slice_flag` in case that it is indicated that each picture referring to the picture parameter set comprises the single slice.

39. The method of claim 38, wherein the format rule further specifies that a value of `rect_slice_flag` is inferred to be equal to 1 in case that it is indicated that each picture referring to the picture parameter set comprises the single slice.

40. The method of claim 1, wherein the format rule further specifies to omit `single_slice_per_subpic_flag` in case that it is indicated that each picture referring to the picture parameter set comprises the single slice.

41. The method of claim 40, wherein the format rule further specifies that a value of `single_slice_per_subpic_flag` is inferred to be equal to 1 in case that it is indicated that each picture referring to the picture parameter set comprises the single slice.

42. The method of claim 1, wherein the format rule further specifies to omit `loop_filter_across_slices_enabled_flag` in case that it is indicated that each picture referring to the picture parameter set comprises the single slice.

43. The method of claim 42, wherein the format rule further specifies to omit a tenth flag in the bitstream in case that it is indicated that each picture referring to the picture parameter set comprises the single slice, wherein the tenth flag specifies whether in-loop filtering operations across slice boundaries are enabled for pictures referring to the picture parameter set.
44. The method of claim 1, wherein the format rule further specifies to include whether it is indicated that each picture referring to the picture parameter set comprises the single slice in a sequence parameter set associated with a coded layer video sequence.
45. The method of claim 1, wherein the format rule further specifies to include an indication indicating whether each picture in a coded layer video sequence has only one tile in a sequence parameter set associated with the coded layer video sequence.
46. The method of claim 1, wherein the format rule further specifies, in case that each picture associated with a first picture parameter set has only one slice, to omit one or more slice partitioning related syntax elements from the first picture parameter set.
47. The method of claim 1, wherein the format rule further specifies, in case that each picture associated with a first picture parameter set has only one tile, to omit one or more slice partitioning related syntax elements from the first picture parameter set.
48. The method of any of claims 1 to 47, wherein the conversion includes encoding the video into the bitstream.
49. The method of any of claims 1 to 47, wherein the conversion includes decoding the video from the bitstream.
50. The method of claim 1 to 47, wherein the conversion includes generating the bitstream from the video; and the method further comprises:
storing the bitstream in a non-transitory computer-readable recording medium.

51. A video processing apparatus comprising a processor configured to implement a method recited in any one or more of claims 1 to 50.
52. A method of storing a bitstream of a video, comprising, a method recited in any one of claims 1 to 50, and further including storing the bitstream to a non-transitory computer-readable recording medium.
53. A computer readable medium storing program code that, when executed, causes a processor to implement a method recited in any one or more of claims 1 to 50.
54. A computer readable medium that stores a coded representation or a bitstream representation generated according to any of the above described methods.
55. A video processing apparatus for storing a bitstream representation, wherein the video processing apparatus is configured to implement a method recited in any one or more of claims 1 to 50.