CONDITIONAL SIGNALING OF SYNTAX ELEMENTS IN A PICTURE HEADER

CROSS REFERENCE TO RELATED APPLICATIONS

[001] This application is based on International Patent Application No. PCT/CN2021/077560, filed on February 24, 2021, which claims the priority to and benefits of PCT Application PCT/CN2020/077331, filed on February 29, 2020. All the aforementioned patent applications are hereby incorporated by reference in their entireties.

TECHNICAL FIELD

[002] This patent document relates to image and video coding and decoding.

BACKGROUND

[003] Digital video accounts for the largest bandwidth use on the internet and other digital communication networks. As the number of connected user devices capable of receiving and displaying video increases, it is expected that the bandwidth demand for digital video usage will continue to grow.

SUMMARY

[004] The present document discloses techniques that can be used by video encoders and decoders for processing coded representation of video using control information useful for decoding of the coded representation.

[005] In one example aspect, a video processing method is disclosed. The method includes performing a conversion between a video having one or more pictures and a coded representation of the video, wherein each of the one or more pictures comprise exactly one slice; wherein the coded representation conforms to a format rule; wherein the format rule specifies that picture parameter set flags are excluded from the coded representation due for picture having exactly one slice.

[006] In another example aspect, another video processing method is disclosed. The method includes performing a conversion between a video slice of a video and a coded representation of the video, wherein the coded representation conforms to a format rule, wherein the format rule

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 multiple 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, and

wherein the format rule further specifies to omit the multiple flags in case that it is indicated that each picture referring to the picture parameter set comprises the single slice, and values of the multiple flags are inferred to be equal to 0 which indicates that the certain coding syntax elements are included directly in the slice header.

3. The method of claim 2, wherein the multiple 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 2 or 3, wherein the multiple 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.

5. The method of any one of claims 2-4, wherein the multiple 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.

6. The method of any one of claims 2-5, wherein the multiple 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.

7. The method of any one of claims 2-6, wherein the multiple 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.

8. The method of any one of claims 2-7, wherein the multiple 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.

9. The method of any one of claims 1-8, wherein the one or more syntax elements include a seventh flag that indicates whether in-loop filtering operations across slice boundaries are enabled for pictures referring to the picture parameter set.

10. The method of claim 9, wherein the format rule further specifies to omit the seventh flag in case that it is indicated that each picture referring to the picture parameter set comprises the single slice, and a value of the seventh flag is inferred to be equal to 0 which indicates that the in-loop filtering operations across slice boundaries are disabled for the picture parameter set.

11. The method of any one of claims 1-10, wherein the format rule further specifies to include an indication indicating whether each picture referring to the picture parameter set has the single slice in the picture parameter set.

12. The method of any one of claims 1-11, wherein the conversion includes encoding the video into the bitstream.

13. The method of any one of claims 1-11, wherein the conversion includes decoding the video from the bitstream.

14. An apparatus for processing video data comprising a processor and a non-transitory memory with instructions thereon, wherein the instructions upon execution by the processor, cause the processor to:

perform 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.

15. The apparatus of claim 14, wherein the one or more syntax elements include multiple 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, and

wherein the format rule further specifies to omit the multiple flags in case that it is indicated that each picture referring to the picture parameter set comprises the single slice, and values of the multiple flags are inferred to be equal to 0 which indicates that the certain coding syntax elements are included directly in the slice header.

16. The apparatus of claim 15, wherein the multiple 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;

wherein the multiple 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;

wherein the multiple 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;

wherein the multiple 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;

wherein the multiple 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;

wherein the multiple 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.

17. The apparatus of any one of claims 14-16, wherein the one or more syntax elements include a seventh flag that indicates whether in-loop filtering operations across slice boundaries are enabled for pictures referring to the picture parameter set;

wherein the format rule further specifies to omit the seventh flag in case that it is indicated that each picture referring to the picture parameter set comprises the single slice, and a value of the seventh flag is inferred to be equal to 0 which indicates that the in-loop filtering operations across slice boundaries are disabled for the picture parameter set.

18. A non-transitory computer-readable storage medium storing instructions that cause a processor to:

perform 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.

19. A non-transitory computer-readable recording medium storing a bitstream of a video which is generated by a method performed by a video processing apparatus, wherein the method comprises:

generating the bitstream of the video comprising one or more pictures;

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.

20. The non-transitory computer-readable recording medium of claim 19, wherein the one or more syntax elements include multiple 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, and

wherein the format rule further specifies to omit the multiple flags in case that it is indicated that each picture referring to the picture parameter set comprises the single slice, and values of the multiple flags are inferred to be equal to 0 which indicates that the certain coding syntax elements are included directly in the slice header;

wherein the multiple 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,

wherein the multiple 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,

wherein the multiple 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,

wherein the multiple 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,

wherein the multiple 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, and

wherein the multiple 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;

wherein the one or more syntax elements include a seventh flag that indicates whether in-loop filtering operations across slice boundaries are enabled for pictures referring to the picture parameter set, and

wherein the format rule further specifies to omit the seventh flag in case that it is indicated that each picture referring to the picture parameter set comprises the single slice, and a value of the seventh flag is inferred to be equal to 0 which indicates that the in-loop filtering operations across slice boundaries are disabled for the picture parameter set; and

wherein the format rule further specifies to include an indication indicating whether each picture referring to the picture parameter set has the single slice in the picture parameter set.