CLAIMS

1. A method of processing video data, comprising:

performing a conversion between a video comprising a video unit and a bitstream of the video,

wherein the bitstream conforms to a format rule, and

wherein the format rule specifies that a syntax element indicating whether an in-loop filtering operation is allowed to be performed across slice boundaries is selectively included in the bitstream responsive to whether the video unit is partitioned into more than one slice.

2. The method of claim 1, wherein the syntax element is in a picture parameter set.

3. The method of claim 1 or 2, wherein the video unit is a sub-picture, and the format rule specifies that the syntax element is included in the bitstream in response to the sub-picture being partitioned into only one slice.

4. The method of claim 3, wherein the format rule specifies that the syntax element is included in the bitstream in response to a first flag being equal to 1 which specifies that each sub-picture consists of one and only one rectangular slice.

5. The method of claim 4, wherein the first flag is single_slice_per_subpic_flag, and wherein the first flag is in a picture parameter set.

6. The method of any of claims 1-5, wherein the video unit is a picture, and the format rule further specifies that the syntax element is included in the bitstream in response to the picture being partitioned in a non-rectangular shape.

7. The method of claim 6, wherein the format rule specifies that the syntax element is included in the bitstream in response to a second flag being equal to 0 which specifies that a raster-san slice mode is in use for the picture.

8. The method of claim 7, wherein the raster-san slice mode is a non-rectangular slice mode, wherein the second flag is rect_slice_flag, and wherein the second flag is in a picture parameter set.

9. The method of any of claims 1-8, wherein the format rule further specifies that information about applicability of a tool to the conversion is allowed to be indicated in the bitstream at both a video slice level and a video picture level, and the tool maps luma samples to particular values and selectively applies a scaling operation to the values of chroma samples.

10. The method of any of claims 1-9, wherein the performing the conversion comprising encoding the video into the bitstream.

11. The method of any of claims 1-9, wherein the performing the conversion comprises decoding the video from the bitstream.

12. 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 a video unit and a bitstream of the video, wherein the bitstream conforms to a format rule, and

wherein the format rule specifies that a syntax element indicating whether an in-loop filtering operation is allowed to be performed across slice boundaries is selectively included in the bitstream responsive to whether the video unit is partitioned into more than one slice.

13. The apparatus of claim 12, wherein the syntax element is in a picture parameter set;

wherein the video unit is a sub-picture, and the format rule specifies that the syntax element is included in the bitstream in response to the sub-picture being partitioned into only one slice;

wherein the format rule specifies that the syntax element is included in the bitstream in response to a first flag being equal to 1 which specifies that each sub-picture consists of one and only one rectangular slice;

wherein the first flag is single_slice_per_subpic_flag, and wherein the first flag is in a picture parameter set.

14. The apparatus of claim 12 or 13, wherein the video unit is a picture, and the format rule further specifies that the syntax element is included in the bitstream in response to the picture being partitioned in a non-rectangular shape;

wherein the format rule specifies that the syntax element is included in the bitstream in response to a second flag being equal to 0 which specifies that a raster-san slice mode is in use for the picture;

wherein the raster-san slice mode is a non-rectangular slice mode, and the second flag is rect_slice_flag, and wherein the second flag is in a picture parameter set;

wherein the format rule further specifies that information about applicability of a tool to the conversion is allowed to be indicated in the bitstream at both a video slice level and a video picture level, and the tool maps luma samples to particular values and selectively applies a scaling operation to the values of chroma samples.

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

perform a conversion between a video comprising a video unit and a bitstream of the video, wherein the bitstream conforms to a format rule, and

wherein the format rule specifies that a syntax element indicating whether an in-loop filtering operation is allowed to be performed across slice boundaries is selectively included in the bitstream responsive to whether the video unit is partitioned into more than one slice.

16. The non-transitory computer-readable storage medium of claim 15, wherein the syntax element is in a picture parameter set;

wherein the video unit is a sub-picture, and the format rule specifies that the syntax element is included in the bitstream in response to the sub-picture being partitioned into only one slice;

wherein the format rule specifies that the syntax element is included in the bitstream in response to a first flag being equal to 1 which specifies that each sub-picture consists of one and only one rectangular slice;

wherein the first flag is single_slice_per_subpic_flag, and wherein the first flag is in a picture parameter set.

17. The non-transitory computer-readable storage medium of claim 15 or 16, wherein the video unit is a picture, and the format rule further specifies that the syntax element is included in the bitstream in response to the picture being partitioned in a non-rectangular shape;

wherein the format rule specifies that the syntax element is included in the bitstream in response to a second flag being equal to 0 which specifies that a raster-san slice mode is in use for the picture;

wherein the raster-san slice mode is a non-rectangular slice mode, and the second flag is rect_slice_flag, and wherein the second flag is in a picture parameter set;

wherein the format rule further specifies that information about applicability of a tool to the conversion is allowed to be indicated in the bitstream at both a video slice level and a video picture level, and the tool maps luma samples to particular values and selectively applies a scaling operation to the values of chroma samples.

18. 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 a bitstream for a video comprising a video unit,

wherein the bitstream conforms to a format rule, and

wherein the format rule specifies that a syntax element indicating whether an in-loop filtering operation is allowed to be performed across slice boundaries is selectively included in the bitstream responsive to whether the video unit is partitioned into more than one slice.

19. The non-transitory computer-readable recording medium of claim 18, wherein the syntax element is in a picture parameter set;

wherein the video unit is a sub-picture, and the format rule specifies that the syntax element is included in the bitstream in response to the sub-picture being partitioned into only one slice;

wherein the format rule specifies that the syntax element is included in the bitstream in response to a first flag being equal to 1 which specifies that each sub-picture consists of one and only one rectangular slice;

wherein the first flag is single_slice_per_subpic_flag, and wherein the first flag is in a picture parameter set.

20. The non-transitory computer-readable recording medium of claim 18 or 19, wherein the video unit is a picture, and the format rule further specifies that the syntax element is included in the bitstream in response to the picture being partitioned in a non-rectangular shape;

wherein the format rule specifies that the syntax element is included in the bitstream in response to a second flag being equal to 0 which specifies that a raster-san slice mode is in use for the picture;

wherein the raster-san slice mode is a non-rectangular slice mode, and the second flag is rect_slice_flag, and wherein the second flag is in a picture parameter set;

wherein the format rule further specifies that information about applicability of a tool to the conversion is allowed to be indicated in the bitstream at both a video slice level and a video picture level, and the tool maps luma samples to particular values and selectively applies a scaling operation to the values of chroma samples.

~~1. A method of video processing, comprising:~~

~~performing a conversion between a video unit of a video and a bitstream of the video,~~

~~wherein the bitstream conforms to a format rule, and~~

~~wherein the format rule specifies that a syntax element indicating whether an in-loop filtering operation is performed across slice boundaries is selectively included in the bitstream responsive to whether or how the video unit is partitioned into slices.~~

~~2. The method of claim 1, wherein the video unit comprises a picture.~~

~~3. The method of claim 1, wherein the video unit comprises a sub-picture.~~

~~4. The method of any of claims 1 to 3, wherein the syntax element is in a picture parameter set.~~

~~5. The method of claim 1, wherein the rule specifies that the syntax element is not included in the bitstream in response to the video unit being partitioned into only one slice.~~

~~6. The method of claim 1, wherein the rule specifies that the syntax element is not included in the bitstream in response to each sub-picture of the video unit being partitioned into only one slice.~~

~~7. The method of claim 1, wherein the rule specifies that the syntax element is included in the bitstream in response to each sub-picture of the video unit being partitioned into only one slice.~~

~~8. The method of claim 7, wherein the rule specifies that the syntax element is included in the bitstream in response to a first flag being equal to 1 which specifies that each sub-picture consists of one and only one rectangular slice.~~

~~9. The method of claim 8, wherein the first flag is single_slice_per_subpic_flag.~~

~~10. The method of claim 8, wherein the first flag is in a picture parameter set.~~

~~11. The method of claim 1, wherein the rule specifies that the syntax element is included in the bitstream in response to the video unit comprising a picture that is partitioned in a non-rectangular shape.~~

~~12. The method of claim 11, wherein the rule specifies that the syntax element is included in the bitstream in response to a second flag being equal to 0 which specifies that a raster-san slice mode is in use for each picture.~~

~~13. The method of claim 12, wherein the raster-san slice mode is a non-rectangular slice mode.~~

~~14. The method of claim 12, wherein the second flag is rect_slice_flag.~~

~~15. The method of claim 12, wherein the second flag is in a picture parameter set.~~

16. The method of claim 1, wherein the rule specifies that the syntax element is not included in the bitstream in response to the video unit comprising a picture that is partitioned in a rectangular shape and a number of slices of the video unit is equal to one.

17. The method of claim 1, wherein the rule specifies that the syntax element is included in the bitstream in response to the bitstream including a value of zero for a syntax element that indicates whether there is one slice per picture as a constraint.

18. The method of claim 1, wherein the rule specifies that the syntax element is required to be equal to zero and is included in the bitstream in response to the bitstream including a value of one for a syntax element that indicates whether there is one slice per picture as a constraint.

19. The method of any of claims 1 to 18, wherein the in-loop filtering operation includes at least one of a deblocking filter operation, a sample adaptive offset operation, or an adaptive loop filter operation.

20. The method of any of claims 1 to 19, wherein the performing the conversion comprising encoding the video into the bitstream.

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

22. The method of any of claims 1 to 19, wherein the performing the conversion comprises decoding the video from the bitstream.

23. A video decoding apparatus comprising a processor configured to implement a method recited in one or more of claims 1 to 22.

24. A video encoding apparatus comprising a processor configured to implement a method recited in one or more of claims 1 to 22.

25. 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 22.

26. 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 from a video unit of the video;

wherein the bitstream conforms to a format rule, and

wherein the format rule specifies that a syntax element indicating whether an in-loop filtering operation is performed across slice boundaries is selectively included in the bitstream responsive to whether or how the video unit is partitioned into slices.

27. A non-transitory computer-readable storage medium storing instructions that cause a processor to implement a method recited in any of claims 1 to 22.

28. A method of bitstream generation, comprising:

generating a bitstream of a video according to a method recited in any of claims 1 to 22, and

storing the bitstream on a computer-readable program medium.

29. A method, an apparatus, a bitstream generated according to a disclosed method or a system described in the present document.