

WHAT IS CLAIMED IS:

1. A method of video processing, comprising:
performing a conversion between a current region of a video and a bitstream representation of the video, wherein the conversion comprises using an adaptive loop filter, and wherein the bitstream representation is configured to indicate the adaptive loop filter using a two-part signaling including:
a first part indicative of a technique of determining the adaptive loop filter, and
a second part indicative of an index used by the technique.
2. The method of claim 1, wherein the technique comprises a selection from fixed filter sets or a selection from at least one adaptive loop filter (ALF) adaptation parameter set (APS).
3. The method of claim 2, wherein the bitstream representation comprises a zero-valued flag indicating that a filter set of the adaptive loop filter is selected from the fixed filter sets.
4. The method of claim 2 or 3, wherein the bitstream representation comprises a one-valued flag indicating that a filter set of the adaptive loop filter is selected from the at least one ALF APS.
5. The method of claim 2, wherein the bitstream representation comprises a flag indicating that a number of ALF APSs used for a color component of the current region is greater than zero.
6. The method of claim 5, wherein the color component is a luma component of the video.
7. The method of claim 2, wherein the bitstream representation excludes a flag indicating that the adaptive loop filter is selected from the at least one ALF APS when a number of ALF APSs used for a color component of the current region is zero, and wherein the flag is inferred to indicate that the adaptive loop filter is selected from the fixed filter sets.
8. The method of any of claims 3 to 7, wherein the flag is context coded or bypass coded.
9. The method of claim 3 or 4, wherein a value of the index is based on the flag.

10. The method of claim 4, wherein whether to signal the index in the bitstream representation is based on a number of allowed ALF APSs for the current region.
11. The method of claim 10, wherein the index is signaled in the bitstream representation when the number of allowed ALF APSs for the current region is greater than 1.
12. The method of claim 10, wherein the index is excluded from the bitstream representation when the number of allowed ALF APSs for the current region is equal to 1.
13. The method of any of claims 10 to 12, wherein the current region comprises a slice, a tile, or a brick.
14. The method of claim 4, wherein an indication of the index of the at least one ALF APS is signaled in the bitstream representation.
15. The method of claim 14, wherein the indication is coded with a truncated unary method.
16. The method of claim 14, wherein the indication is coded with a truncated binary method.
17. The method of claim 15 or 16, wherein a maximum value of the indication is set to a number of allowed ALF APSs for the current region minus K, and wherein K is an integer.
18. The method of claim 17, wherein $K = 0$ or $K = 1$.
19. The method of claim 1, wherein the index is context coded.
20. The method of claim 19, wherein a first K bins of a binarized bin string of the index are context coded and remaining bins are bypass coded, and wherein K is an integer.
21. The method of claim 20, wherein $K = 1$.
22. The method of claim 19, wherein each of a plurality of bins of a binarized bin string of the index is bypass coded.

23. The method of any of claims 1 to 22, wherein the adaptive loop filter (ALF) is a filtering process that is applied as part of the conversion and is controlled by parameters of the adaptation parameter set (APS) in the bitstream representation.
24. The method of any of claims 1 to 23, wherein the adaptation parameter set (APS) is a syntax structure comprising one or more syntax elements that apply to zero or more slices of the video as determined by zero or more syntax elements in slice headers corresponding to the zero or more slices.
25. A method of video processing, comprising:
determining, based on a property of a video, a size of a current region of the video that shares a common loop filtering setting for a conversion between the current region and a bitstream representation of the video; and
performing, based on the determining, the conversion.
26. The method of claim 25, wherein the property is a resolution of a picture comprising the current region.
27. The method of claim 25, wherein the property is a maximum resolution of a picture comprising the current region.
28. The method of claim 25, wherein a width in luma samples and a height in luma samples of a maximum size of a picture are denoted maxW and maxH, respectively, wherein a width in luma samples and a height in luma samples of a size of a current picture comprising the current region are denoted currW and currH, respectively, wherein a width and a height of a size of a current coding tree unit (CTU) or a current coding tree block (CTB) are denoted ctbW and ctbH, respectively, and wherein a width and a height of a size of the current region are denoted regW and regH, respectively.
29. The method of claim 28, wherein $\text{regW} = (\text{ctbW} \times \text{currW} / \text{maxW})$.
30. The method of claim 28, wherein $\text{regH} = (\text{ctbH} \times \text{currH} / \text{maxH})$.

31. The method of claim 28, wherein regW or regH is based on a partitioning structure of the current CTB or the current CTU.
32. A method of video processing, comprising:
performing a lossless conversion between a current region of the video and a bitstream representation of the video, wherein the bitstream representation conforms to a syntax rule that restricts a value of a syntax field associated with the current region in the bitstream representation due to the conversion being lossless.
33. The method of claim 32, wherein the syntax rule specifies that a network abstraction layer (NAL) unit type is not equal to a NAL unit type of an adaptation parameter set (APS).
34. The method of claim 32, wherein the syntax rule specifies that the value of the syntax field is different from one or more values in an adaptive loop filter (ALF) adaptation parameter set (APS).
35. The method of claim 32, wherein the syntax rule specifies that the value of the syntax field is different from one or more values in a luma mapping with chroma scaling (LMCS) adaptation parameter set (APS).
36. The method of claim 32, wherein the syntax rule specifies that the value of the syntax field is different from one or more values in a scaling list adaptation parameter set (APS).
37. The method of any of claims 1 to 36, wherein performing the conversion is further based on at least one or more of:
- (a) video contents,
 - (b) a message signaled in a decoder parameter set (DPS), a sequence parameter set (SPS), a video parameter set (VPS), a picture parameter set (PPS), an adaptation parameter set (APS), a picture header, a slice header, a tile group header, a largest coding unit (LCU), an LCU row, a group of LCUs, a transform unit (TU), a prediction unit (PU), or a video coding unit,
 - (c) a position of a coding unit (CU), the TU, the PU, the current block, or the video coding unit in a current picture comprising the current region,
 - (d) decoded information of the current region,

- (e) an indication of a color format of the video,
 - (f) a coding tree structure,
 - (g) a slice type, a tile group type, or a picture type,
 - (h) a color component of the video,
 - (i) a temporal layer ID, and
 - (j) a profile, a level or a tier of a standard.
38. The method of any of claims 1 to 37, wherein performing the conversion comprises generating the bitstream representation from the current region.
39. The method of any of claims 1 to 37, wherein performing the conversion comprises generating the current region from the bitstream representation.
40. An apparatus in a video system comprising a processor and a non-transitory memory with instructions thereon, wherein the instructions upon execution by the processor, cause the processor to implement the method in any one of claims 1 to 39.
41. A computer program product stored on a non-transitory computer readable media, the computer program product including program code for carrying out the method in any one of claims 1 to 39.
42. A computer readable medium that stores the bitstream representation generated according to the method in any one of claims 1 to 39.