SIMPLIFIED INTER PREDICTION WITH GEOMETRIC PARTITIONING

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] ~~Under the applicable patent law and/or rules pursuant to the Paris Convention, this application is made to timely claim~~ This application is based on International Patent Application No. PCT/CN2020/132162, filed on November 27, 2020, which claims the priority to and benefits of International Patent Application No. PCT/CN2019/122256, filed on November 30, 2019, International Patent Application No. PCT/CN2020/071032, filed on January 8, 2020, and International Patent Application No. PCT/CN2020/071552, filed on January 10, 2020. ~~For all purposes under the law, the entire disclosures of the aforementioned applications are incorporated by reference as part of the disclosure of this application.~~ All the aforementioned patent applications are hereby incorporated by reference in their entireties.

TECHNICAL FIELD

[0002] This patent document relates to video coding and decoding techniques, devices and systems.

BACKGROUND

[0003] Currently, efforts are underway to improve the performance of current video codec technologies to provide better compression ratios or provide video coding and decoding schemes that allow for lower complexity or parallelized implementations. Industry experts have recently proposed several new video coding tools and tests are currently underway for determining their effectivity.

SUMMARY

[0004] Devices, systems and methods related to digital video coding, and specifically, to management of motion vectors are described. The described methods may be applied to existing video coding standards (e.g., High Efficiency Video Coding (HEVC) or Versatile Video Coding) and future video coding standards or video codecs.

[0005] In one representative aspect, the disclosed technology may be used to provide a method for video processing. This method includes performing a conversion between a current video block of a video and a bitstream representation of the video, wherein, during the conversion, a use of a geometric partitioning mode is allowed for the current video block, and wherein parameters of the geometric partitioning mode are computed using a set of angles including a first number of angles that is less than a first threshold value and/or a set of distances including a second number of distances that is less than a second threshold value.

CLAIMS

What is claimed is:

1. A method of processing video data, comprising:

performing a conversion between a current video block of a video and a bitstream of the video,

wherein, during the conversion, a use of a geometric partitioning mode is allowed for the current video block, and the geometric partitioning mode includes multiple partition schemes,

wherein parameters of the multiple partition schemes of the geometric partitioning mode are computed using a set of angles including a first number of angles that is less than a first threshold value and a set of distances for the set of angles including a second number of distances that is less than a second threshold value, and

wherein a number of distances for a vertical angle and a horizontal angle is equal to X, whereby X is equal to 2.

2. The method of claim 1, wherein the first threshold value is equal to 24.

3. The method of claim 1 or 2, wherein the first number is equal to 20.

4. The method of any of claims 1-3, wherein a number of the multiple partition schemes is less than a third threshold value, wherein the third threshold value is equal to 82.

5. The method of any of claims 1-4, further comprising determining, for the current video block, a first motion information and a second motion information,

wherein the conversion is based on the first motion information and the second motion information, wherein the conversion comprises applying a weighting process to generate a final prediction for the current video block based on a weighted sum of prediction samples derived from the first motion information and the second motion information, and

wherein a calculation of a first variable used in the weighting process for the current video block depends on a total number of minimum angle unit in a 360 degree used in the geometric partitioning mode.

6. The method of claim 5, wherein the first variable denoted as displacementY is set to (displacementX+(the total number of minimum angle unit>>2))) % the total number of minimum angle unit, and wherein the displacementX is set to angleIdx specifying an angle index of a partition scheme of the geometric partitioning mode.

7. The method of claim 5 or 6, wherein a calculation of a second variable of shiftHor used in the weighting process depends on the total number of minimum angle unit, whereby the shiftHor is set to 0 or 1.

8. The method of claim 7, wherein the shiftHor is set to 0 in a case that at least one of following conditions is met:

1) angleIdx % (the total number of minimum angle unit/2) is equal to (the total number of minimum angle unit>>2); or

2) angleIdx % (the total number of minimum angle unit/2) is not equal to 0 and hwRatio $\geqslant$ 1, wherein hwRatio is set to H/W,

wherein angleIdx specifies an angle index of a partition scheme of the geometric partitioning mode, and H and W are height and width of the current video block, respectively.

9. The method of any of claims 1-8, wherein in response to a width to height ratio or a height to width ratio of the current video block being greater than a fourth threshold, or in response to a width or a height of the current video block being smaller than a fifth threshold, the geometric partitioning mode is not allowed for the current video block.

10. The method of any of claims 1-9, wherein when a syntax element for the geometric partitioning mode is not present in the bitstream, a value of the syntax element is inferred to be a default value equal to 0, wherein the syntax element includes at least one of a first syntax element specifying a partition scheme of the geometric partitioning mode, a second syntax element specifying

a first merging candidate index of the geometric partitioning mode, or a third syntax element specifying a second merging candidate index of the geometric partitioning mode.

11. The method of any of claims 1-10, wherein the conversion includes encoding the video into the bitstream.

12. The method of any of claims 1-10, wherein the conversion includes decoding the video from the bitstream.

13. 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 current video block of a video and a bitstream of the video,

wherein, during the conversion, a use of a geometric partitioning mode is allowed for the current video block, and the geometric partitioning mode includes multiple partition schemes,

wherein parameters of the multiple partition schemes of the geometric partitioning mode are computed using a set of angles including a first number of angles that is less than a first threshold value and a set of distances for the set of angles including a second number of distances that is less than a second threshold value, and

wherein a number of distances for a vertical angle and a horizontal angle is equal to X, whereby X is equal to 2.

14. The apparatus of claim 13, wherein the first threshold value is equal to 24;

wherein the first number is equal to 20;

wherein a number of the multiple partition schemes is less than a third threshold value, wherein the third threshold value is equal to 82;

wherein in response to a width to height ratio or a height to width ratio of the current video block being greater than a fourth threshold, or in response to a width or a height of the current video block being smaller than a fifth threshold, the geometric partitioning mode is not allowed for the current video block; and

wherein when a syntax element for the geometric partitioning mode is not present in the bitstream, a value of the syntax element is inferred to be a default value equal to 0, wherein the syntax element includes at least one of a first syntax element specifying a partition scheme of the geometric partitioning mode, a second syntax element specifying a first merging candidate index of the geometric partitioning mode, or a third syntax element specifying a second merging candidate index of the geometric partitioning mode.

15. The apparatus of claim 13 or 14, wherein the processor is further caused to determine, for the current video block, a first motion information and a second motion information,

wherein the conversion is based on the first motion information and the second motion information, wherein the conversion comprises applying a weighting process to generate a final prediction for the current video block based on a weighted sum of prediction samples derived from the first motion information and the second motion information,

wherein a calculation of a first variable used in the weighting process for the current video block depends on a total number of minimum angle unit in a 360 degree used in the geometric partitioning mode;

wherein the first variable denoted as displacementY is set to (displacementX+(the total number of minimum angle unit>>2))) % the total number of minimum angle unit, and wherein the displacementX is set to angleIdx specifying an angle index of a partition scheme of the geometric partitioning mode;

wherein a calculation of a second variable of shiftHor used in the weighting process depends on the total number of minimum angle unit, whereby the shiftHor is set to 0 or 1; and

wherein the shiftHor is set to 0 in a case that at least one of following conditions is met:

1) angleIdx % (the total number of minimum angle unit/2) is equal to (the total number of minimum angle unit>>2); or

2) angleIdx % (the total number of minimum angle unit/2) is not equal to 0 and hwRatio $\geqslant$ 1, wherein hwRatio is set to H/W,

wherein angleIdx specifies an angle index of a partition scheme of the geometric partitioning mode, and H and W are height and width of the current video block, respectively.

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

perform a conversion between a current video block of a video and a bitstream of the video,

wherein, during the conversion, a use of a geometric partitioning mode is allowed for the current video block, and the geometric partitioning mode includes multiple partition schemes,

wherein parameters of the multiple partition schemes of the geometric partitioning mode are computed using a set of angles including a first number of angles that is less than a first threshold value and a set of distances for the set of angles including a second number of distances that is less than a second threshold value, and

wherein a number of distances for a vertical angle and a horizontal angle is equal to X, whereby X is equal to 2.

17. The non-transitory computer-readable storage medium of claim 16, wherein the first threshold value is equal to 24;

wherein the first number is equal to 20;

wherein a number of the multiple partition schemes is less than a third threshold value, wherein the third threshold value is equal to 82;

wherein in response to a width to height ratio or a height to width ratio of the current video block being greater than a fourth threshold, or in response to a width or a height of the current video block being smaller than a fifth threshold, the geometric partitioning mode is not allowed for the current video block; and

wherein when a syntax element for the geometric partitioning mode is not present in the bitstream, a value of the syntax element is inferred to be a default value equal to 0, wherein the syntax element includes at least one of a first syntax element specifying a partition scheme of the geometric partitioning mode, a second syntax element specifying a first merging candidate index of the geometric partitioning mode, or a third syntax element specifying a second merging candidate index of the geometric partitioning mode.

18. The non-transitory computer-readable storage medium of claim 16 or 17, wherein the processor is further caused to determine, for the current video block, a first motion information and a second motion information,

wherein the conversion is based on the first motion information and the second motion information, wherein the conversion comprises applying a weighting process to generate a final prediction for the current video block based on a weighted sum of prediction samples derived from the first motion information and the second motion information,

wherein a calculation of a first variable used in the weighting process for the current video block depends on a total number of minimum angle unit in a 360 degree used in the geometric partitioning mode;

wherein the first variable denoted as displacementY is set to (displacementX+(the total number of minimum angle unit>>2))) % the total number of minimum angle unit, and wherein the displacementX is set to angleIdx specifying an angle index of a partition scheme of the geometric partitioning mode;

wherein a calculation of a second variable of shiftHor used in the weighting process depends on the total number of minimum angle unit, whereby the shiftHor is set to 0 or 1; and

wherein the shiftHor is set to 0 in a case that at least one of following conditions is met:

1) angleIdx % (the total number of minimum angle unit/2) is equal to (the total number of minimum angle unit>>2); or

2) angleIdx % (the total number of minimum angle unit/2) is not equal to 0 and hwRatio $\geqslant$ 1, wherein hwRatio is set to H/W,

wherein angleIdx specifies an angle index of a partition scheme of the geometric partitioning mode, and H and W are height and width of the current video block, respectively.

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 for a current video block of a video,

wherein, during the generating, a use of a geometric partitioning mode is allowed for the current video block, and the geometric partitioning mode includes multiple partition schemes,

wherein parameters of the multiple partition schemes of the geometric partitioning mode are computed using a set of angles including a first number of angles that is less than a first threshold value and a set of distances for the set of angles including a second number of distances that is less than a second threshold value, and

wherein a number of distances for a vertical angle and a horizontal angle is equal to X, whereby X is equal to 2.

20. The non-transitory computer-readable recording medium of claim 19, wherein the first threshold value is equal to 24;

wherein the first number is equal to 20;

wherein a number of the multiple partition schemes is less than a third threshold value, wherein the third threshold value is equal to 82;

wherein in response to a width to height ratio or a height to width ratio of the current video block being greater than a fourth threshold, or in response to a width or a height of the current video block being smaller than a fifth threshold, the geometric partitioning mode is not allowed for the current video block; and

wherein when a syntax element for the geometric partitioning mode is not present in the bitstream, a value of the syntax element is inferred to be a default value equal to 0, wherein the syntax element includes at least one of a first syntax element specifying a partition scheme of the geometric partitioning mode, a second syntax element specifying a first merging candidate index of the geometric partitioning mode, or a third syntax element specifying a second merging candidate index of the geometric partitioning mode;

wherein the method further comprises determining, for the current video block, a first motion information and a second motion information,

wherein the conversion is based on the first motion information and the second motion information, wherein the conversion comprises applying a weighting process to generate a final prediction for the current video block based on a weighted sum of prediction samples derived from the first motion information and the second motion information,

wherein a calculation of a first variable used in the weighting process for the current video block depends on a total number of minimum angle unit in a 360 degree used in the geometric partitioning mode;

wherein the first variable denoted as displacementY is set to (displacementX+(the total number of minimum angle unit>>2))) % the total number of minimum angle unit, and wherein the displacementX is set to angleIdx specifying an angle index of a partition scheme of the geometric partitioning mode;

wherein a calculation of a second variable of shiftHor used in the weighting process depends on the total number of minimum angle unit, whereby the shiftHor is set to 0 or 1; and

wherein the shiftHor is set to 0 in a case that at least one of following conditions is met:

1) angleIdx % (the total number of minimum angle unit/2) is equal to (the total number of minimum angle unit>>2); or

2) angleIdx % (the total number of minimum angle unit/2) is not equal to 0 and hwRatio $\geqslant$ 1, wherein hwRatio is set to H/W,

wherein angleIdx specifies an angle index of a partition scheme of the geometric partitioning mode, and H and W are height and width of the current video block, respectively.

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

~~performing a conversion between a current video block of a video and a bitstream representation of the video,~~

~~wherein, during the conversion, a use of a geometric partitioning mode is allowed for the current video block, and~~

~~wherein parameters of the geometric partitioning mode are computed using a set of angles including a first number of angles that is less than a first threshold value and/or a set of distances including a second number of distances that is less than a second threshold value.~~

~~2. The method of claim 1, wherein the first threshold value is 24.~~

~~3. The method of claim 1, wherein the geometric partitioning mode is selected from a set of geometric partitioning modes, and wherein the set of geometric partitioning modes includes a number of modes that is less than a third threshold value.~~

~~4. The method of claim 3, wherein the third threshold value is 82.~~

~~5. The method of claim 1, wherein the second threshold is 3 or 4.~~

~~6. The method of claim 1, wherein a number of distances for one or more angles is less than the second threshold value.~~

7. The method of claim 1, wherein a number of distances for vertical and horizontal angles is equal to X, whereby X is a positive integer.

8. The method of claim 1, wherein X is 2.

9. The method of claim 1, wherein a number of angles used in a decoding process for the current video block is equal to a sum of 1 and a maximum value of a variable of angleIdx, whereby the angleIdx specifying an angle index of the geometric partitioning mode.

10. The method of claim 1, wherein a calculation of a variable of displacemenY used in a processes of weighted sample prediction and/or motion vector storing for the current video block depends on a total number of angles used in a decoding process, whereby the displacement Y is set to (displacementX+(NUM_ANGLE>>2))) % NUM_ANGLE, the displacementX is set to angleIdx specifying an angle index of the geometric partitioning mode, and the NUM_ANGLE specifies a number of angles used in a decoding process for the current video block.

11. The method of claim 1, wherein a calculation of a variable of shiftHor used in a processes of weighted sample prediction and/or motion vector storing for the current video block depends on a total number of angles used in a decoding process, whereby the shiftHor is set to 0 or 1.

12. The method of claim 11, wherein the shiftHor is set to 0 in a case that at least one of following conditions is met:

3) angleIdx % (NUM_ANGLE/2) is equal to (NUM_ANGLE>>2)

4) angleIdx % (NUM_ANGLE/2) is not equal to 0 and hwRatio ≥ 1, wherein hwRatio is set to H/W,

whereby angleIdx specifies an angle index of the geometric partitioning mode, and the NUM_ANGLE specifies a number of angles used in a decoding process for the current video block, and H and W are height and width of the current video block, respectively.

13. The method of claim 11, wherein a derivation process of offset values for deriving a blending weight index of the current video block is dependent on a number of angles and/or a value of the shiftHor.

14. The method of claim 11, wherein a derivation process of offset values for deriving a motion index of the current video block is dependent on a number of angles and/or a value of the shiftHor.

15. The method of claim 11, wherein a lookup table is used in computing the set of distances, and wherein a size of the lookup table is based at least in part on the set of angles.

16. The method of claim 15, wherein values of the lookup table are determined based on the size of the lookup table.

17. The method of claim 1, wherein in a case that A and B indicate two input arrays, predSamplesLA and predSamplesLB, used for a weighted sample prediction process for the geometric partitioning mode and that PART1 and PART2 are representations of A and B for a derivation of output weighted prediction sample values of a predicted block of the current video block, whether PART1 and PART2 are equal to A or B depends on angel indices, T1 and T2.

18. The method of claim 1, wherein a variable of a partIdx used in a motion vector storing process for the geometric partitioning mode is set to 0 or 1 based on angle indices, T1 and T2, where the partIdx is used to derive another variable of sType for assigning motion vectors for a motion storage.

19. A method of video processing, comprising:

determining, for a conversion between a current video block of a video and a bitstream representation of the video, an applicability of a geometric partitioning mode based on a rule that depends on one or more dimensions of the current video block and/or a mathematical function of the one or more dimensions of the current video; and

performing the conversion based on the determining.

~~20. The method of claim 19, wherein the geometric partitioning mode includes at least one of: a triangle prediction mode (TPM), a geometric merge mode (GEO), and/or a wedge prediction mode.~~

~~21. The method of claim 19 or 20, wherein the geometric partitioning mode includes splitting the current video block into two or more sub-regions, wherein at least one sub-region does not include a QT, BT, and/or a partition.~~

~~22. The method of any one or more of claims 19 to 21, wherein the rule depends on a block width, a block height, and/or an aspect ratio of the current video block.~~

~~23. The method of any one or more of claims 19 to 22, wherein the rule specifies that the geometric partitioning mode is applied in a case that W >= T1 and/or H >= T2 and/or W * H < T3 and/or W * H > T4, whereby a width and a height of the current video block are denoted as W and H, respectively, and T1, T2, T3 and T4 are constant values.~~

~~24. The method of any one or more of claims 19 to 22, wherein the rule specifies that the geometric partitioning mode is applied in a case that W >= T1 and/or H >= T2 and/or W * H <= T3 and/or W * H >= T4, whereby a width and a height of the current video block are denoted as W and H, respectively, and T1, T2, T3 and T4 are constant values.~~

~~25. The method of any one or more of claims 19 to 22, wherein the rule specifies that the geometric partitioning mode is applied in a case that W*H < T1 || (W*H <= T2 && W/H< = T3 && H/W <= T4), whereby a width and a height of the current video block are denoted as W and H, respectively, and T1, T2, T3 and T4 are constant values.~~

~~26. The method of any one or more of claims 19 to 22, wherein the rule specifies that the geometric partitioning mode is applied in a case that W*H < T1 || (W*H <= T2 && abs(logW - logH) <= T3), whereby a width and a height of the current video block are denoted as W and H, respectively, and T1, T2 and T3 are constant values.~~

~~27. The method of any one or more of claims 19 to 22, wherein the rule specifies that the geometric partitioning mode is applied in a case that W*H <= T1 && W/H <=T2 && H/W <= T3, whereby a width and a height of the current video block are denoted as W and H, respectively, and T1, T2 and T3 are constant values.~~

~~28. The method of any one or more of claims 19 to 22, wherein the rule specifies that the geometric partitioning mode is applied in a case that W>=Tx and H >= Ty, whereby a width and a height of the current video block are denoted as W and H, respectively, and Tx, Ty are constant values.~~

~~29. The method of any one or more of claims 19 to 22, wherein the rule specifies that the geometric partitioning mode is not applied in a case that W>N and/or H>M, whereby a width and a height of the current video block are denoted as W and H, respectively, and N, M are constant values.~~

~~30. The method of any one or more of claims 19 to 22, wherein the rule specifies that the geometric partitioning mode is not applied in a case that W=N and/or H=M, whereby a width and a height of the current video block are denoted as W and H, respectively, and N, M are constant values.~~

~~31. The method of any one or more of claims 19 to 22, wherein the rule specifies that the geometric partitioning mode is not applied in a case that one or more following conditions are satisfied, whereby a width and a height of the block are denoted as W and H, respectively, and Ti (i=1…17) are constant values:~~

~~g) W < T1 and/or W > T2 and/or W = T3~~

~~h) H < T4 and/or H > T5 and/or H = T6~~

~~i) W * H < T7 and/or W*H > T8 and/or W*H = T8~~

~~j) W/H > T9 and/or W/H > T10 and/or W/H = T11~~

~~k) H/W > T12 and/or H/W > T13 and/or H/W = T14~~

~~l) Abs(logW – logH) > T15 and/or Abs(logW – logH) < T16 and/or Abs(logW – logH) = T17.~~

~~32. The method of any one or more of claims 19 to 22, wherein the rule specifies that the geometric partitioning mode is applied in a case that one or more following conditions are satisfied,~~

whereby a width and a height of the block are denoted as W and H, respectively, and Ti (i=1…17) are constant values:

g) W < T1 and/or W > T2 and/or W = T3

h) H < T4 and/or H > T5 and/or H = T6

i) W * H < T7 and/or W*H > T8 and/or W*H = T8

j) W/H > T9 and/or W/H > T10 and/or W/H = T11

k) H/W > T12 and/or H/W > T13 and/or H/W = T14

l) Abs(logW – logH) > T15 and/or Abs(logW – logH) < T16 and/or Abs(logW – logH) = T17.

33. The method of any one or more of claims 19 to 22, wherein the rule depends on the mathematical function that depends on ratios of a width (W) and/or a height (H) of the current video block.

34. The method of claim 33, wherein 33, wherein the mathematical function is max (H, W)/min (H,W).

35. The method of any one or more of claims 19 to 22, wherein the mathematical function relates to differences and/or ratios between a width (W) and a height (H) of the current video block.

36. The method of any one or more of claims 19 to 22, wherein the rule specifies that the geometric partitioning mode is not applied for the current video block having a width (W) and a height (H) in a case that a width to height ratio (W/H) or a height to width ratio (H/W) is greater than or no less than X, whereby X is a constant value.

37. The method of any one or more of claims 19 to 22, wherein the current video block is a luma block or a chroma block.

38. The method of any one or more of claims 19 to 22, wherein the current video block includes a luma component and a chroma component and wherein the rule specifies that the geometric partitioning mode is applied for the luma component but not applied for the chroma block.

39. The method of any one or more of claims 19 to 22, wherein the current video block corresponds to a luma block in a video region and an applicability of the geometric partitioning mode to a chroma block in the video region depends on the one more dimensions of the current video block.

40. A method of video processing, comprising:

determining, for a conversion between a current video block of a video and a bitstream representation of the video, an applicability of a geometric partitioning mode according to a rule that depends on coding characteristics of the current video block; and

performing the conversion based on the determining.

41. The method of claim 40, wherein the coding characteristics include at least one of a maximum transform size, a maximum allowed coding unit (CU) size, or a chroma format.

42. The method of claim 41, wherein the rule specifies that the geometric partitioning mode is not applied for the current video block that has a width and/or a height greater than the maximum transform size.

43. The method of claim 41, wherein the rule specifies that the geometric partitioning mode is not applied for the current video block that has a width and/or a height equal to the maximum allowed CU size.

44. The method of claim 41, wherein the rule specifies that the geometric partitioning mode is not applied for the current video block having a 4:0:0 chroma format, 4:4:4 chroma format or 4:2:2 chroma format.

45. The method of claim 41, wherein the rule specifies that the geometric partitioning mode is not applied for the current video block having a certain color component with a certain chroma format.

46. A method of video processing, comprising:

determining that a rule of exclusion is applicable to a conversion between a current video block of a video and a bitstream representation of the video, wherein the rule of exclusion specifies that the conversion disallows using a geometric partitioning mode and a coding tool together for the current video block; and

performing the conversion based on the determining.

47. The method of claim 46, wherein the bitstream representation omits an indication of usage of the coding tool and/or information of the coding tool in a case that the geometric partitioning mode is applied to the current video block.

48. The method of claim 46, wherein the bitstream representation omits an indication of usage of the geometric partitioning mode and/or information of the geometric partitioning mode in a case that the coding tool is applied to the current video block.

49. The method of any of claims 46 to 48, wherein the coding tool includes an adaptive color transform, a dual tree coding mode, a transform skip mode, a block differential pulse-code modulation (BDPCM) coding mode, or a sub-block transform (SBT).

50. A method of video processing, comprising:

determining, for a conversion between a video and a bitstream representation of the video, different geometric partitioning mode indices for different color components of the video according to a rule; and

performing the conversion based on the determining.

51. The method of claim 50, wherein the rule specifies that a chroma component of the video has a different geometric partitioning mode index from that of a luma component of the video.

52. The method of claim 50, wherein the geometric partitioning mode is not applied to chroma components of the video.

53. The method of claim 50, wherein the bitstream representation includes the different geometric partitioning mode indices.

54. The method of claim 53, wherein the different geometric partitioning mode indices include a mode index for a luma component of the video and a mode index for chroma components of the video.

55. The method of claim 50, wherein the bitstream representation includes a geometric partitioning mode index of a second color component and wherein a geometric partitioning mode index of a first color component is predicted from the mode index of the second color component.

56. A method of video processing, comprising:

determining, for a conversion between a current video block of a current picture of a video and a bitstream representation of the video, an applicability of a geometric partitioning mode according to a rule; and

performing the conversion based on the determining,

wherein the geometric partitioning mode includes splitting the current video block into two or more prediction sub-regions, and

wherein the rule depends on a resolution of one or more reference pictures associated with the two or more prediction sub-regions.

57. The method of claim 56, wherein the rule specifies that the geometric partitioning mode is not applied in a case that the resolutions of reference pictures associated with the two or more prediction sub-regions are different from each other.

58. The method of claim 56, wherein the rule specifies that the geometric partitioning mode is not applied in a case that a resolution of a reference picture associated with a prediction sub-region is different from a resolution of the current picture.

59. The method of claim 56, wherein the rule specifies that the geometric partitioning mode is applied in a case that a resolution of a reference picture associated with a prediction sub-region is different from a resolution of the current picture.

60. The method of any of claims 56 to 59, wherein a resolution of the current picture refers to a width or a height of the current picture or refers to a window in the picture.

61. A method of video processing, comprising:

performing a conversion between a current video block of a video and a bitstream representation of the video,

wherein the bitstream representation conforms to a format rule,

wherein the format rule specifies that the bitstream representation omits a syntax element related to a geometric partitioning mode in a case that the geometric partitioning mode is disabled for the current video block.

62. The method of claim 61, wherein the syntax element includes at least one of wedge_partition_idx, merge_wedge _idx0, or merge_wedge_idx1.

63. The method of claim 61, wherein the syntax element that is not included in the bitstream representation is inferred to be a default value.

64. The method of claim 61, wherein semantic variables related to the geometric partitioning mode is inferred to be a default value in a case that the geometric partitioning mode is disabled or not allowed.

65. A method of video processing, comprising:

determining, for a conversion between a video unit comprising one or more video blocks of a video and a bitstream representation of the video, that multiple sets of geometric partitioning modes are allowed for coding the one or more video blocks of the video unit according to a rule; and

performing the conversion based on the determining.

66. The method of claim 65, wherein the rule specifies that a selection of a set from the multiple sets is dependent on decoded information.

~~67. The method of claim 66, wherein the decoded information includes a dimension and/or a shape of a video block.~~

~~68. The method of claim 65, wherein the rule specifies that at least two of the multiple sets have different numbers of allowed geometric partitioning modes.~~

~~69. The method of claim 65, wherein the rule specifies that T sets among the multiple sets are with a same number of allowed geometric partitioning modes but at least one geometric partitioning mode included in one of the T sets is excluded in another one of the T sets.~~

~~70. The method of claim 65, wherein the rule specifies that T sets among the multiple sets are with a same geometric partitioning modes but at least one geometric partitioning mode is arranged in a different position for any two of the T sets.~~

~~71. The method of claim 65, wherein how to signal a geometric partitioning mode index depends on a corresponding set of allowed geometric partitioning modes.~~

~~72. The method of claim 65, wherein a decoded geometric partitioning mode index depends on a corresponding geometric partitioning mode.~~

~~73. The method of claim 65, wherein a total count of the geometric partitioning modes that are to be used for a video block in the bitstream representation is defined as a number that is less than a constant value.~~

~~74. The method of claim 65, wherein a total count of the geometric partitioning modes that are to be signaled for a video block in the bitstream representation is defined as a number that is less than a constant value.~~

~~75. The method of claim 73 or 74, wherein the number is signaled.~~

~~76. A method of video processing, comprising:~~

performing a conversion between a video including video blocks and a bitstream representation of the video,

wherein, during the conversion, a first count of geometric partitioning modes are available for computing a partition angle index and/or a partition distance index, a second count of geometric partitioning modes are available for coding in the bitstream representation, and a third count of geometric partitioning modes are available for signaling in the bitstream representation of, wherein the first count and/or the second count and/or the third count are based at least on corresponding dimensions of the video blocks.

77. The method of claim 76, wherein the second count and/or and the third count are different from the first count.

78. The method of claim 76, wherein the second count equals the third count.

79. The method of claim 76, wherein the second count and/or and the third count are smaller than the first count.

80. The method of claim 76, wherein the second count and/or the third count is defined differently for different block categories of the video blocks.

81. The method of claim 80, wherein a category of a video block is based on ratios of a width and a height of the video block, a mathematical function of the width and the height of the video block, or a dimension of the video block.

82. The method of claim 81, wherein the second count and/or the third count is smaller than the first count when the dimension of the first block meet one or more threshold conditions.

83. The method of claim 80, wherein a set of fixed numbers is defined for the second count and/or the third count for each category of the video block.

84. The method of claim 80, wherein the second count and/or the third count for each category of the video block is included in the bitstream representation.

85. The method of claim 80, wherein the second count and/or the third count for each category of the video block is predefined.

86. The method of claim 80, wherein a width and/or a height of a luma block is used for deriving the second count and/or the third count.

87. A method of video processing, comprising:

performing a conversion between a current video block of a video and a bitstream representation of the video according to a rule,

wherein the rule specifies that a first geometric partitioning mode index value is signaled in the bitstream representation of the current video block and a second geometric partitioning mode index value is used for computing a partition angle index and/or a partition distance index of the current video block, and wherein the first geometric partitioning mode index value is different from the second geometric partitioning mode index value.

88. The method of claim 87, wherein the current video block is associated with a certain category based on a width and/or a height of the current video block and wherein a subset of a full set of geometric partitioning modes, partition angles, and/or partition distances is used for the certain category.

89. The method of claim 87, wherein at least one mapping table defines a relationship between the first geometric partitioning mode index value and the second geometric partitioning mode index value.

90. The method of claim 89, wherein the at least one mapping table is included in the bitstream representation.

91. The method of claim 89, wherein the at least one mapping table is predefined.

92. The method of claim 87, wherein N mapping tables are used for the conversion and wherein N is a constant value depending on a number of block categories of the video blocks.

93. The method of claim 92, wherein lengths of the N mapping tables depend on the block categories of the video blocks.

94. A method of video processing, comprising:

performing a conversion between a current video block of a video and a bitstream representation of the video,

wherein a geometric partitioning mode index of the current video block is coded in the bitstream such that a binarization of the geometric partitioning mode index is performed according to a rule.

95. The method of claim 94, wherein the rule specifies that the binarization dependent on decoded information of the current video block.

96. The method of claim 95, wherein the decoded information includes a dimension of the current video block and/or a category of the current video block.

97. The method of claim 94, wherein the rule specifies that a truncated binary code is used for the binarization.

98. The method of claim 97, wherein the geometric partitioning mode index included in the bitstream representation is different from a derived geometric partitioning mode index that is used for deriving a partition angle index and/or a partition distance index.

99. The method of claim 94, wherein the rule specifies that a Kth order Exp-Golomb (EG) coding is used for the binarization, whereby K is an integer.

100. The method of claim 94, wherein the rule specifies that a context coding is used to code the geometric partitioning mode index.

101. The method of claim 94, wherein the rule specifies that first X bins of the geometric partitioning mode index are coded by a context coding and a remaining bin is coded by a by-pass coding without a context modeling.

102. A method of video processing, comprising:

determining, for a conversion between a chroma block of a video unit of a video and a bitstream representation of the video, blending weights and/or motion storage weights for the chroma block according to a rule; and

performing the conversion based on the determining,

wherein a geometric partitioning mode is applied to the chroma block, and

wherein the rule depends on a chroma sample location type indicating a relative position of a certain chroma sample in the chroma block with respect to a corresponding luma sample.

103. The method of claim 102, wherein the video unit includes a sequence parameter set (SPS), a video parameter set (VPS), a picture parameter set (PPS), a picture header, a subpicture, a lice, a slice header, a tile, a brick, a coding tree unit, or a virtual pipeline data unit (VPDU).

104. The method of claim 102, wherein a type of a downsampling filter used for a blending weights derivation for chroma samples is signaled at a video unit level.

105. The method of claim 104, wherein the bitstream representation includes a flag to switch between different chroma location types.

106. The method of claim 105, wherein the flag specifies whether a top-left downsampled luma sample in a geometric partitioning mode is collocated with a top-left luma sample or the flag specifies whether the top-left downsampled luma sample is horizontally co-sited with the top-left luma sample but vertically shifted relatively to the top-left luma sample.

~~107. The method of claim 104, wherein the type of the downsampling filter is signaled for the chroma block having 4:2:0 chroma format or 4:2:2: chroma format.~~

~~108. The method of claim 104, wherein the bitstream representation includes a flag for specifying a type of a chroma downsampling filter used for a geometric partitioning prediction.~~

~~109. The method of claim 102, wherein a type of downsampling filter used for a blending weights derivation for chroma samples is signaled at a video unit level.~~

~~110. The method of claim 109, wherein a look up table is defined to specify a corresponding relationship between a chroma subsampling filter type and a chroma format type.~~

~~111. The method of claim 102, wherein a downsampling filter used for a geometric partitioning prediction of the chroma block depends on the chroma sample location type.~~

~~112. The method of claim 111, wherein chroma weights for the chroma block are subsampled from collocated top-left luma weights in a case that the chroma block has a certain chroma sample location type.~~

~~113. The method of claim 111, wherein a specified X-tap filter is used for chroma weights subsampling in a case that the chroma block has a certain chroma sample location type.~~

~~114. The method of any of claims 1 to 113, wherein the geometric partitioning mode is selected from a set of geometric partitioning modes, and wherein the set of geometric partitioning modes includes one or more geometric partitioning modes divide a block into two partitions, at least one of which is non-square and non-rectangular.~~

~~115. The method of any of claims 1 to 114, wherein the conversion includes encoding the video into the bitstream representation.~~

~~116. The method of any of claims 1 to 114, wherein the conversion includes decoding the video from the bitstream representation.~~

~~117. A video processing apparatus comprising a processor configured to implement a method recited in any one or more of claims 1 to 116.~~

~~118. 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 116.~~

~~119. A computer readable medium that stores a coded representation or a bitstream representation generated according to any of the above methods.~~