

CLAIMS

What is claimed is:

1. A method of video processing, comprising:
determining, for a conversion between a current picture of a video and a coded representation of the video, a position of a reference sample in a reference picture that is associated with the current picture based on a top-left position of a window of a picture, the picture comprising at least the current picture or the reference picture, wherein the window is subject to a processing rule during the conversion; and
performing the conversion based on the determining.
2. The method of claim 1, wherein the window comprises a scaling window, and wherein the processing rule specifies that samples in the scaling window are subject to a resampling operation.
3. The method of claim 1, wherein the window comprises a conformance window, and wherein the processing rule specifies that samples outside the conformance window are disposable when outputting the video.
4. The method of any of claims 1 to 3, wherein the top-left position of the window is determined based on a left offset value and a top offset value associated with the window.
5. The method of any of claims 1 to 4, wherein a horizontal position of a current sample relative to the top-left position of the window x_{Sb}' is determined based on a horizontal position of the current sample in the current picture x_{Sb} and the left offset of the window of the current picture.
6. The method of claim 5, wherein the horizontal position of the current sample relative to the top-left position of the window x_{Sb}' is further determined based on a sample precision.

7. The method of claim 5 or 6, wherein the horizontal position of the current sample relative to the top-left position of the window xSb' is used to determine a position of a reference sample.
8. The method of any of claims 5 to 7, wherein a horizontal position of a reference sample relative to the reference picture is determined based on xSb' and the left offset of the window of the reference picture.
9. The method of claim 6 or 8, wherein the sample precision indicates a shift of four bits.
10. The method of any of claims 1 to 8, wherein a vertical position of a current sample relative to the top-left position of the window ySb' is determined based on a vertical position of the current sample in the current picture ySb and the top offset of the window of the current picture.
11. The method of claim 10, wherein the vertical position of the current sample relative to the top-left position of the window ySb' is further determined based on a sample precision.
12. The method of claim 10 or 11, wherein the vertical position of the current sample relative to the top-left position of the window ySb' is used to determine a position of a reference sample.
13. The method of any of claims 10 to 12, wherein a vertical position of a reference sample relative to the reference picture is determined based on ySb' and the top offset of the window of the reference picture.
14. The method of claim 11 or 13, wherein the sample precision indicates a shift of four bits.
15. The method of any of claims 1 to 14, wherein usage of the top-left position of the window is based on a color component of the video.
16. The method of 15, wherein the color component comprises a luma component.

17. A method of video processing, comprising:
performing a conversion between a current picture of a video and a coded representation of the video,
wherein the current picture comprises a first window having a $W \times H$ sample dimension, where W and H are integers;
wherein a reference picture associated with the current picture comprises a second window having a $W' \times H'$ sample dimension, where W' and H' are integers and a top-left position of the second window is denoted as $(X0, Y0)$;
wherein samples in the first window and the second window are subject to a same processing rule during the conversion; and
wherein an integer part of a coordinate of a reference sample is constrained in a range that is determined in part based on the first window or the second window.
18. The method of claim 17, wherein the integer part of a horizontal coordinate of the reference sample is constrained in the range of $[\min W, \max W]$.
19. The method of claim 18, wherein $\min W$ is equal to 0.
20. The method of claim 18, wherein $\min W$ is equal to $X0$.
21. The method of claim 18, wherein $\max W$ is equal to $W-1$.
22. The method of claim 18, wherein $\max W$ is equal to $W'-1$.
23. The method of claim 18, wherein $\max W$ is equal to $X0+W'-1$.
24. The method of any of claims 18 to 23, wherein at least one of $\min W$ or $\max W$ is modified based on a color component and/or a color format of the video.
25. The method of claim 24, wherein $\min W$ is modified to be $\min W \times \text{subC}$, subC being an integer.

26. The method of claim 24, wherein minW is modified to be $\text{minW} / \text{subC}$, subC being an integer.
27. The method of claim 24, wherein maxW is modified to be $\text{maxW} \times \text{subC}$, subC being an integer.
28. The method of claim 24, wherein maxW is modified to be $\text{maxW} / \text{subC}$, subC being an integer.
29. The method of any of claims 25 to 28, wherein subC is 1 in case the color component comprises a luma component.
30. The method of any of claims 25 to 28, wherein subC is 2 in case the color component comprises a chroma component and the color format is 4:2:0 or 4:2:2.
31. The method of any of claims 25 to 28, wherein subC is 1 in case the color component comprises a chroma component and the color format is 4:4:4.
32. The method of claim 17, wherein the integer part of a vertical coordinate of the reference sample is constrained in the range of $[\text{minH}, \text{maxH}]$.
33. The method of claim 32, wherein minH is equal to 0.
34. The method of claim 32, wherein minH is equal to Y0.
35. The method of claim 32, wherein maxH is equal to H-1.
36. The method of claim 32, wherein maxH is equal to H'-1.
37. The method of claim 32, wherein maxH is equal to Y0+H'-1.

38. The method of any of claims 32 to 37, wherein at least one of minH or maxH is modified based on a color component and/or a color format of the video.
39. The method of claim 38, wherein minH is modified to be $\text{minH} \times \text{subC}$, subC being an integer.
40. The method of claim 38, wherein minH is modified to be $\text{minH} / \text{subC}$, subC being an integer.
41. The method of claim 38, wherein maxH is modified to be $\text{maxH} \times \text{subC}$, subC being an integer.
42. The method of claim 38, wherein maxH is modified to be $\text{maxH} / \text{subC}$, subC being an integer.
43. The method of any of claims 32 to 42, wherein subC is 1 in case the color component comprises a luma component.
44. The method of any of claims 32 to 42, wherein subC is 2 in case the color component comprises a chroma component and the color format is 4:2:0 or 4:2:2.
45. The method of any of claims 32 to 42, wherein subC is 1 in case the color component comprises a chroma component and the color format is 4:4:4.
46. The method of any of claims 17 to 45, wherein applicability of the constraint for the integer part of the coordinate of the reference sample is determined based on a dimension of the current picture and a dimension of the reference picture.
47. The method of any of claims 17 to 45, wherein the constraint for the integer part of the coordinate of the reference sample is based on a dimension of the first window and a dimension of the second window.

48. The method of claim 46 or 47, wherein the constraint is applicable in case (1) the dimension of the current picture is different than the dimension of the reference picture, or (2) the dimension of the first window is different than the dimension of the second window.
49. The method of any of claims 17 to 48, wherein the first window and the second window are scaling windows, and wherein the same processing rule specifies that samples in the scaling windows are subject to a resampling operation.
50. The method of any of claims 17 to 48, wherein the first window and the second window are conformance windows, and wherein the same processing rule specifies that samples outside the conformance windows are discarded when outputting the video.
51. The method of any of claims 1 to 50, wherein the conversion includes encoding the video into the coded representation.
52. The method of any of claims 1 to 50, the conversion includes decoding the coded representation into the video.
53. A video processing apparatus comprising a processor configured to implement a method recited in any of claims 1 to 52.
54. A computer-readable medium having code stored thereon, the code, upon execution by a processor, causing the processor to implement a method recited in any of claims 1 to 52.
55. A computer readable medium that stores a coded representation generated according to any of claims to 1 to 52.