

CLAIMS

1. A method of video processing, comprising:
performing a conversion between a video comprising a video picture and a bitstream of a video according to a rule,
wherein the rule specifies that syntax elements indicate a first width and a first height of a scaling window for the video picture, and
wherein the rule specifies that a range of permissible values for the syntax elements include values greater than or equal to two times a second width of the video picture and two times a second height of the video picture.
2. The method of claim 1, wherein the values of the syntax elements specify offsets that are applied to a size of the video picture for scaling ratio calculation.
3. The method of claim 1, wherein the syntax elements include pps_scaling_win_left_offset, pps_scaling_win_right_offset, pps_scaling_win_top_offset, and pps_scaling_win_bottom_offset.
4. The method of any of claims 1 to 3,
wherein the rule specifies that a value of $\text{SubWidthC} * (\text{pps_scaling_win_left_offset} + \text{pps_scaling_win_right_offset})$ is greater than or equal to $-\text{pps_pic_width_in_luma_samples} * M$ and less than $\text{pps_pic_width_in_luma_samples}$,
wherein CurrPicScalWinWidthL is the first width of the scaling window,
wherein pps_pic_width_in_luma_samples is the second width of the video picture,
wherein SubWidthC is a width of a video block and obtained from a table according to a chroma format of the video picture that includes the video block, and
wherein $\text{CurrPicScalWinWidthL} = \text{pps_pic_width_in_luma_samples} - \text{SubWidthC} * (\text{pps_scaling_win_right_offset} + \text{pps_scaling_win_left_offset})$.
5. The method of claim 4, wherein M is equal to 16, 8, 32, or 64.

6. The method of any of claims 1 to 3,
wherein the rule specifies that a value of $\text{SubHeightC} * (\text{pps_scaling_win_top_offset} + \text{pps_scaling_win_bottom_offset})$ is greater than or equal to $-\text{pps_pic_height_in_luma_samples} * N$ and less than $\text{pps_pic_height_in_luma_samples}$,
wherein $\text{CurrPicScalWinHeightL}$ is the first height of the scaling window,
wherein $\text{pps_pic_height_in_luma_samples}$ is the second height of the video picture,
wherein SubHeightC is a height of a video block and obtained from a table according to a chroma format of the video picture that includes the video block, and
wherein $\text{CurrPicScalWinHeightL} = \text{pps_pic_height_in_luma_samples} - \text{SubHeightC} * (\text{pps_scaling_win_bottom_offset} + \text{pps_scaling_win_top_offset})$.
7. The method of claim 6, wherein N is equal to 16, 8, 32, or 64.
8. The method of any of claims 4 to 7, wherein M and N are dependent on a layout of subpictures of the video picture.
9. The method of claim 8,
wherein M is equal to $\text{Ceil}(\text{pps_pic_width_in_luma_samples} \div \text{minSubpicWidth})$,
wherein minSubpicWidth is a minimum subpicture width of all subpictures in the picture referring to a picture parameter set,
wherein $\text{pps_pic_width_in_luma_samples}$ is the second width of the video picture, and
wherein $\text{Ceil}()$ function rounds a number up to a next largest integer.
10. The method of claim 8,
wherein N is equal to $\text{Ceil}(\text{pps_pic_height_in_luma_samples} \div \text{minSubpicHeight})$,
wherein minSubpicHeight is a minimum subpicture height of all subpictures in the video picture referring to a picture parameter set,
wherein $\text{pps_pic_height_in_luma_samples}$ is the second height of the video picture, and
wherein $\text{Ceil}()$ function rounds a number up to a next largest integer.
11. A method of video processing, comprising:

determining, for a conversion between a video picture of a video and a bitstream of the video, whether or how (1) a first width or a first height of a first scaling window of a reference video picture of the video and (2) a second width or a second height of a second scaling window of a current video picture are constrained according to a rule; and
performing the conversion according to the determining.

12. The method of claim 11, wherein the rule specifies that there is an absence of constraint on the first width or the first height of the first scaling window and the second width or the second height of the second scaling window in response to the reference video picture and the current video picture being on different video layers.

13. The method of claim 11, wherein the rule specifies that:

$\text{CurrPicScalWinWidthL} * M$ is greater than or equal to $\text{refPicScalWinWidthL}$,
 $\text{CurrPicScalWinHeightL} * M$ is greater than or equal to $\text{refPicScalWinHeightL}$,
 $\text{CurrPicScalWinWidthL}$ is less than or equal to $\text{refPicScalWinWidthL} * N$,
 $\text{CurrPicScalWinHeightL}$ is less than or equal to $\text{refPicScalWinHeightL} * N$,
 $\text{CurrPicScalWinWidthL} * \text{sps_pic_width_max_in_luma_samples}$ is greater than or equal to $\text{refPicScalWinWidthL} * (\text{pps_pic_width_in_luma_samples} - \text{Max}(K0, \text{MinCbSizeY}))$,
 $\text{CurrPicScalWinHeightL} * \text{sps_pic_height_max_in_luma_samples}$ is greater than or equal to $\text{refPicScalWinHeightL} * (\text{pps_pic_height_in_luma_samples} - \text{Max}(K1, \text{MinCbSizeY}))$,

wherein $\text{CurrPicScalWinWidthL}$ and $\text{CurrPicScalWinHeightL}$ are the second width and the second height of the second scaling window of the current video picture, respectively,

wherein $\text{refPicScalWinWidthL}$ and $\text{refPicScalWinHeightL}$ are the first width and the first height of the first scaling window of the reference video picture, respectively,

wherein $\text{sps_pic_width_max_in_luma_samples}$ is a maximum width in units of luma samples of each video picture referring to a sequence parameter set, and

wherein $\text{pps_pic_width_in_luma_samples}$ is a width of each video picture referring to a picture parameter set.

14. The method of claim 13,
 wherein the rule specifies that $M=M1$ and $N=N1$ in response to the reference video picture and the current video picture being in a same video layer,
 wherein the rule specifies that $M=M2$ and $N=N2$ in response to the reference video picture and the current video picture being on different video layers,
 wherein $M1$ is less than or equal to $M2$, and
 wherein $N1$ is greater than or equal to $N2$.
15. The method of claim 13, wherein $K0$ or $K1$ is an integer value.
16. The method of claim 13, wherein $K0$ or $K1$ is a minimum allowed video picture width or a minimum allowed video picture height, respectively.
17. The method of claim 13, wherein $K0$ or $K1$ is 8.
18. A method of video processing, comprising:
 performing a conversion between a video comprising a video picture comprising one or more video slices and a bitstream of the video,
 wherein the bitstream conforms to a rule that specifies that a width and a height of a scaling window of the video picture determine a value of a variable that specifies whether a resampling of a j -th reference video picture in an i -th reference picture list is enabled for a video slice of the video picture, where i and j are integers.
19. The method of claim 18,
 wherein the variable is $RprConstraintsActive[i][j]$,
 wherein the rule specifies that $RprConstraintsActive[i][j] =$
 $(CurrPicScalWinWidthL \neq fRefWidth \ || \ CurrPicScalWinHeightL \neq fRefHeight)$,
 wherein $fRefWidth$ and $fRefHeight$ are values of $CurrPicScalWinWidthL$ and $CurrPicScalWinHeightL$, respectively, of the j -th reference video picture.

20. The method of claim 18, wherein the rule specifies that the value of the variable is based on a first video layer to which the j-th reference video picture belongs and a second video layer to which a current video picture belongs.
21. The method of claim 20, wherein the rule specifies that the value of the variable is based on whether the first video layer of the j-th reference video picture and the second video layer of the current video picture are a same video layer.
22. The method of any of claims 1 to 21, wherein the performing the conversion comprising encoding the video into the bitstream.
23. The method of any of claims 1 to 21, 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.
24. The method of any of claims 1 to 21, wherein the performing the conversion comprises decoding the video from the bitstream.
25. A video decoding apparatus comprising a processor configured to implement a method recited in one or more of claims 1 to 24.
26. A video encoding apparatus comprising a processor configured to implement a method recited in one or more of claims 1 to 24.
27. 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 24.
28. A non-transitory computer-readable storage medium that stores a bitstream generated according to the method in any one of claims 1 to 24.

29. A non-transitory computer-readable storage medium storing instructions that cause a processor to implement a method recited in any of claims 1 to 24.
30. A method of bitstream generation, comprising:
generating a bitstream of a video according to a method recited in any of claims 1 to 24,
and
storing the bitstream on a computer-readable program medium.
31. A method, an apparatus, a bitstream generated according to a disclosed method or a system described in the present document.