FILTER PARAMETER SIGNALING IN VIDEO PICTURE HEADERS

CROSS REFERENCE TO RELATED APPLICATIONS

[001] This application is based on International Patent Application No. PCT/US2021/029416, filed on April 27, 2021 which claims priority to and benefits of U.S. Provisional Application No. US 63/017,499, filed on April 29, 2020. All the aforementioned patent applications are hereby incorporated by reference in their entireties.

TECHNICAL FIELD

[002] This patent document relates to image and video coding and decoding.

BACKGROUND

[003] Digital video accounts for the largest bandwidth use on the internet and other digital communication networks. As the number of connected user devices capable of receiving and displaying video increases, it is expected that the bandwidth demand for digital video usage will continue to grow.

SUMMARY

[004] The present document discloses techniques that can be used by video encoders and decoders for processing coded representation of video using control information useful for decoding of the coded representation.

[005] In one example aspect, a video processing method is disclosed. The method includes performing a conversion between a video picture of a video and a bitstream of the video. The conversion comprises performing a deblocking filtering operation in which at least some samples of reconstructed video blocks are selectively filtered using a deblocking filter whose parameters are indicated. A first syntax element in a first video unit level specifying a deblocking parameter offset for β divided by 2 applied to a chroma component for one or more slices in a first video unit and a second syntax element in the first video unit level specifying a deblocking parameter offset for tC divided by 2 applied to the chroma component for the one or more slices in the first video unit are determined according to a rule in response to the first syntax element and the second syntax element not included in the bitstream. The rule specifies that (1) in case a syntax flag indicating that chroma tool offsets are present in a picture parameter set, the first syntax

CLAIMS

1. A video processing method, comprising:

performing a conversion between a video picture of a video and a bitstream of the video,

wherein the conversion comprises performing a deblocking filtering operation in which at least some samples of reconstructed video blocks are selectively filtered using a deblocking filter whose parameters are indicated, and

wherein a first syntax element in a first video unit level specifying a deblocking parameter offset for β divided by 2 applied to a chroma component for one or more slices in a first video unit and a second syntax element in the first video unit level specifying a deblocking parameter offset for tC divided by 2 applied to the chroma component for the one or more slices in the first video unit are determined according to a rule in response to the first syntax element and the second syntax element not included in the bitstream,

wherein the rule specifies that (1) in case a syntax flag indicating that chroma tool offsets are present in a picture parameter set, the first syntax element is equal to a third syntax element in a second video unit level specifying a deblocking parameter offset for β divided by 2 applied to a chroma component associated with a second video unit, and the second syntax element is equal to a fourth syntax element in the second video unit level specifying a deblocking parameter offset for tC divided by 2 applied to the chroma component associated with the second video unit, and (2) in case the syntax flag indicating that the chroma tool offsets are not present in the picture parameter set, the first syntax element is equal to a fifth syntax element in the first video unit level specifying a deblocking parameter offset for β divided by 2 applied to a luma component for the one or more slices in the first video unit, and the second syntax element is equal to a sixth syntax element in the first video unit level specifying a deblocking parameter offset for tC divided by 2 applied to the luma component for the one or more slices in the first video unit.

2. The method of claim 1, wherein the chroma component is a cb component.

3. The method of claim 1, wherein the chroma component is a cr component.

4. The method of any of claims 1 to 3, wherein the first video unit level is a picture header, and wherein the second video unit level is a picture parameter set.

5. The method of claim 4, wherein the first syntax element specifies the deblocking parameter offset for β divided by 2 applied to a chroma component for slices in a current picture and the second syntax element specifies the deblocking parameter offset for tC divided by 2 applied to the chroma component for slices in the current picture.

6. The method of claim 4, wherein the first video unit is a picture, and wherein the second video unit comprises one or more pictures.

7. The method of any of claims 1 to 6, wherein the first video unit level is a slice header, and wherein the second video unit level is a picture header.

8. The method of claim 7, wherein the first video unit is a slice, and wherein the second video unit is a picture.

9. The method of claim 7, wherein the first syntax element specifies the deblocking parameter offset for β divided by 2 applied to a chroma component for a current slice and the second syntax element specifies the deblocking parameter offset for tC divided by 2 applied to the chroma component for the current slice.

10. The method of any of claims 1 to 9, wherein the syntax flag is equal to 1 in response to the chroma tool offsets being present in the picture parameter set.

11. The method of any of claims 1 to 10, wherein the syntax flag is equal to 0 in response to the chroma tool offsets being omitted in the picture parameter set.

12. The method of any of claims 1 to 11, wherein the conversion comprises encoding the video into the bitstream.

13. The method of any of claims 1 to 11, wherein the conversion comprises decoding the video from the bitstream.

14. 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 picture of a video and a bitstream of the video,

wherein the conversion comprises performing a deblocking filtering operation in which at least some samples of reconstructed video blocks are selectively filtered using a deblocking filter whose parameters are indicated, and

wherein a first syntax element in a first video unit level specifying a deblocking parameter offset for β divided by 2 applied to a chroma component for one or more slices in a first video unit and a second syntax element in the first video unit level specifying a deblocking parameter offset for tC divided by 2 applied to the chroma component for the one or more slices in the first video unit are determined according to a rule in response to the first syntax element and the second syntax element not included in the bitstream,

wherein the rule specifies that (1) in case a syntax flag indicating that chroma tool offsets are present in a picture parameter set, the first syntax element is equal to a third syntax element in a second video unit level specifying a deblocking parameter offset for β divided by 2 applied to a chroma component associated with a second video unit, and the second syntax element is equal to a fourth syntax element in the second video unit level specifying a deblocking parameter offset for tC divided by 2 applied to the chroma component associated with the second video unit, and (2) in case the syntax flag indicating that the chroma tool offsets are not present in the picture parameter set, the first syntax element is equal to a fifth syntax element in the first video unit level specifying a deblocking parameter offset for β divided by 2 applied to a luma component for the one or more slices in the first video unit, and the second syntax element is equal to a sixth syntax element in the first video unit level specifying a deblocking parameter offset for tC divided by 2 applied to the luma component for the one or more slices in the first video unit.

15. The apparatus of claim 14, wherein the first video unit is a picture, and wherein the second video unit comprises one or more pictures, and the first syntax element specifies the deblocking parameter offset for β divided by 2 applied to a chroma component for slices in a current picture and the second syntax element specifies the deblocking parameter offset for tC divided by 2 applied to the chroma component for slices in the current picture.

16. The apparatus of claim 14, wherein the first video unit is a slice, and wherein the second video unit is a picture, and wherein the first syntax element specifies the deblocking parameter offset for β divided by 2 applied to a chroma component for a current slice and the second syntax element specifies the deblocking parameter offset for tC divided by 2 applied to the chroma component for the current slice.

17. The apparatus of any of claims 14 to 16, wherein the syntax flag is equal to 1 in response to the chroma tool offsets being present in the picture parameter set.

18. The apparatus of any of claims 14 to 17, wherein the syntax flag is equal to 0 in response to the chroma tool offsets being omitted in the picture parameter set.

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

perform a conversion between a video picture of a video and a bitstream of the video,

wherein the conversion comprises performing a deblocking filtering operation in which at least some samples of reconstructed video blocks are selectively filtered using a deblocking filter whose parameters are indicated, and

wherein a first syntax element in a first video unit level specifying a deblocking parameter offset for β divided by 2 applied to a chroma component for one or more slices in a first video unit and a second syntax element in the first video unit level specifying a deblocking parameter offset for tC divided by 2 applied to the chroma component for the one or more slices in the first video unit are determined according to a rule in response to the first syntax element and the second syntax element not included in the bitstream,

wherein the rule specifies that (1) in case a syntax flag indicating that chroma tool offsets are present in a picture parameter set, the first syntax element is equal to a third syntax element in a second video unit level specifying a deblocking parameter offset for β divided by 2 applied to a chroma component associated with a second video unit, and the second syntax element is equal to a fourth syntax element in the second video unit level specifying a deblocking parameter offset for tC divided by 2 applied to the chroma component associated with the second video unit, and (2) in case the syntax flag indicating that the chroma tool offsets are not present in the picture parameter set, the first syntax element is equal to a fifth syntax element in the first video unit level specifying a deblocking parameter offset for β divided by 2 applied to a luma component for the one or more slices in the first video unit, and the second syntax element is equal to a sixth syntax element in the first video unit level specifying a deblocking parameter offset for tC divided by 2 applied to the luma component for the one or more slices in the first video unit.

20. 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:

performing a conversion between a video picture of a video and a bitstream of the video,

wherein the conversion comprises performing a deblocking filtering operation in which at least some samples of reconstructed video blocks are selectively filtered using a deblocking filter whose parameters are indicated, and

wherein a first syntax element in a first video unit level specifying a deblocking parameter offset for β divided by 2 applied to a chroma component for one or more slices in a first video unit and a second syntax element in the first video unit level specifying a deblocking parameter offset for tC divided by 2 applied to the chroma component for the one or more slices in the first video unit are determined according to a rule in response to the first syntax element and the second syntax element not included in the bitstream,

wherein the rule specifies that (1) in case a syntax flag indicating that chroma tool offsets are present in a picture parameter set, the first syntax element is equal to a third syntax element in a second video unit level specifying a deblocking parameter offset for β divided by 2 applied to a chroma component associated with a second video unit, and the second syntax element is equal

to a fourth syntax element in the second video unit level specifying a deblocking parameter offset for tC divided by 2 applied to the chroma component associated with the second video unit, and (2) in case the syntax flag indicating that the chroma tool offsets are not present in the picture parameter set, the first syntax element is equal to a fifth syntax element in the first video unit level specifying a deblocking parameter offset for β divided by 2 applied to a luma component for the one or more slices in the first video unit, and the second syntax element is equal to a sixth syntax element in the first video unit level specifying a deblocking parameter offset for tC divided by 2 applied to the luma component for the one or more slices in the first video unit.