

CLAIMS

1. A method of video processing, comprising:

determining, for a first conversion between a chroma block of a video and a bitstream of the video, ~~that~~ a prediction ~~model~~mode is applied to the chroma block, wherein in the ~~prediction~~prediction mode, prediction samples of the chroma block are ~~derived~~derived based on reconstructed luma samples of a collocated luma block of the chroma block;

deriving parameters of the prediction ~~model~~mode based on neighbouring chroma samples of the chroma block and downsampled neighbouring top luma samples of the collocated luma block; and

performing the first conversion based on the parameters,

wherein in ~~response to~~case that the chroma block ~~having~~has a color ~~format~~format of 4:2:2, the downsampled neighbouring top luma samples are derived based on ~~the~~a nearest above neighbouring line of the collocated luma block;

wherein in case that a chroma collocated flag is equal to 0, the chroma block is not at a top coding tree unit boundary and the chroma block has a color format of 4:2:0,

$(pY[SubWidthC * x - 1][-1] + pY[SubWidthC * x - 1][-2] + 2 * pY[SubWidthC * x][-1] + 2 * pY[SubWidthC * x][-2] + pY[SubWidthC * x + 1][-1] + pY[SubWidthC * x + 1][-2] + 4) >> 3$ are used to derive at least one of downsampled neighbouring top luma samples,

wherein $pY[SubWidthC * x - 1][-1]$, $pY[SubWidthC * x - 1][-2]$, $pY[SubWidthC * x][-1]$, $pY[SubWidthC * x][-2]$, $pY[SubWidthC * x + 1][-1]$ and $pY[SubWidthC * x + 1][-2]$ denote luma samples from neighboring lines of the collocated luma block, and

wherein x is an integer and SubWidthC is equal to 2 in case that the chroma block has a color format of 4:2:0.

2. The method of claim 1, wherein in response to the chroma block having a color ~~format~~format of 4:2:2, ~~the~~ a second above neighbouring line of the collocated luma block is excluded from being used to derive the downsampled neighbouring top luma samples.

3. The method of claim 1 ~~or 2~~, wherein in response to the chroma block having a color ~~format~~format of 4:2:2, a same downsampling filter is used to derive the downsampled neighbouring top luma samples regardless of whether the chroma block is at the top coding tree unit boundary or not.

4. The method of claim 3, wherein in response to the chroma block being at the top coding tree unit boundary, the downsampled neighbouring top luma samples are derived based on the nearest above neighbouring line of the collocated luma block.

5. The method of claim 4, wherein in response to the chroma block being at the top coding tree unit boundary or the chroma block having a color ~~format~~format of 4:2:2,
$$pDsY[x] = (pY[2*x - 1][-1] + 2 * pY[2 * x][-1] + pY[2 * x + 1][-1] + 2) >> 2,$$

wherein $pDsY[x]$ ~~denotes~~denotes a downsampled neighbouring top luma sample ~~and x is an integer~~, and

wherein $pY[2*x][-1]$, $pY[2*x - 1][-1]$ and $pY[2*x + 1][-1]$ ~~denotes~~denotes luma samples from the nearest above neighboring line of the collocated luma block.

6. The method of ~~any one of claims 1 to claim 15~~, wherein the parameters of the prediction ~~model~~mode are further derived based on downsampled neighbouring left luma samples of the collocated luma block;

wherein the downsampled neighbouring top luma samples and the downsampled neighbouring left luma samples are derived using downsampling filters with same filter coefficients in response to the chroma block having a color ~~format~~format of 4:2:2.

7. The method of claim 6, wherein the same filter coefficients are [1 2 1].

8. The method of any one of claims 1 to 7, wherein in response to a chroma-collocated flag being equal to 0, the chroma block being not at the top coding tree unit boundary and the chroma block having a color format of 4:2:0,

$$(pY[SubWidthC * x - 1][-1] + pY[SubWidthC * x - 1][-2] + 2 * pY[SubWidthC * x][-1] + 2 * pY[SubWidthC * x][-2] + pY[SubWidthC * x + 1][-1] + pY[SubWidthC * x + 1][-2] + 4) >> 3$$
 are used to derive at least one of downsampled neighbouring top luma samples,

wherein $pY[SubWidthC * x - 1][-1]$, $pY[SubWidthC * x - 1][-2]$, $pY[SubWidthC * x][-1]$, $pY[SubWidthC * x][-2]$, $pY[SubWidthC * x + 1][-1]$ and $pY[SubWidthC * x + 1][-2]$ denote luma samples from neighboring lines of the collocated luma block, and

wherein x is an interger and $SubWidthC$ is equal to 2 in response to the chroma block having a color format of 4:2:0.

9. The method of any one of claims 1 to 8, wherein a first syntax element specifying the maximum block size used for a transform skip mode is conditionally included in the bitstream based on a value of a transform skip enabled flag included in a sequence parameter set in the bitstream.

10. The method of any one of claims 1 to 9, wherein the conversion includes decoding the video from the bitstream.

11. The method of any one of claims 1 to 9, wherein the conversion includes encoding the video into the bitstream.

1211. 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:

determine, for a first conversion between a chroma block of a video and a bitstream of the video, ~~that~~ a prediction ~~model~~mode is applied to the chroma block, wherein in the ~~prediction~~prediction mode, prediction samples of the chroma block are ~~derived~~derived based on reconstructed luma samples of a collocated luma block of the chroma block;

derive parameters of the prediction ~~model~~mode based on neighbouring chroma samples of the chroma block and downsampled neighbouring top luma samples of the collocated luma block; and

perform the first conversion based on the parameters,

wherein in ~~response to case~~ that the chroma block having a color ~~format~~format of 4:2:2, the downsampled neighbouring top luma samples are derived based on ~~the a~~ nearest above neighbouring line of the collocated luma block;

wherein in case that a chroma collocated flag is equal to 0, the chroma block is not at a top coding tree unit boundary and the chroma block has a color format of 4:2:0,

$(pY[SubWidthC * x - 1][-1] + pY[SubWidthC * x - 1][-2] + 2 * pY[SubWidthC * x][-1] + 2 * pY[SubWidthC * x][-2] + pY[SubWidthC * x + 1][-1] + pY[SubWidthC * x + 1][-2] + 4) >> 3$ are used to derive at least one of downsampled neighbouring top luma samples,

wherein $pY[SubWidthC * x - 1][-1]$, $pY[SubWidthC * x - 1][-2]$, $pY[SubWidthC * x][-1]$, $pY[SubWidthC * x][-2]$, $pY[SubWidthC * x + 1][-1]$ and $pY[SubWidthC * x + 1][-2]$ denote luma samples from neighboring lines of the collocated luma block, and

wherein x is an integer and SubWidthC is equal to 2 in case that the chroma block has a color format of 4:2:0.

~~13~~12. The apparatus of claim ~~12~~11, wherein in response to the chroma block having a color ~~format~~format of 4:2:2, ~~the a~~ second above neighbouring line of the collocated luma block is excluded from being used to derive the downsampled neighbouring top luma samples.

~~14~~13. The apparatus of claim ~~12-11~~or 13, wherein in response to the chroma block having a color ~~format~~format of 4:2:2, a same downsampling filter is used to derive the downsampled neighbouring top luma samples regardless of whether the chroma block is at the top coding tree unit boundary or not.

~~15~~14. The apparatus of claim ~~14~~13, wherein in response to the chroma block being at the top coding tree unit boundary, the downsampled neighbouring top luma samples are derived based on the nearest above neighbouring line of the collocated luma block.

~~16~~15. The apparatus of claim ~~15~~14, wherein in response to the chroma block being at the top coding tree unit boundary or the chroma block having a color ~~format~~format of 4:2:2, $pDsY[x] = (pY[2*x - 1][-1] + 2 * pY[2 * x][-1] + pY[2 * x + 1][-1] + 2) >> 2$,
wherein $pDsY[x]$ ~~denotes~~denotes a downsampled neighbouring top luma sample ~~and x is an integer~~, and
wherein $pY[2*x][-1]$, $pY[2*x - 1][-1]$ and $pY[2*x + 1][-1]$ ~~denotes~~denotes luma samples from the nearest above neighboring line of the collocated luma block.

~~17~~16. The apparatus of ~~any one of claims 12 to 16~~claim 11, wherein the parameters of the prediction ~~model~~mode are further derived based on downsampled neighbouring left luma samples of the collocated luma block;
wherein the downsampled neighbouring top luma samples and the downsampled neighbouring left luma samples are derived using downsampling filters

with same filter coefficients in response to the chroma block having a color ~~format~~format of 4:2:2.

~~17~~17. The apparatus of claim ~~16~~16, wherein the same filter coefficients are [1 2 1].

18. The apparatus of claim 11, wherein a first syntax element specifying a maximum block size used for a transform skip mode is conditionally included in the bitstream based on a value of a transform skip enabled flag included in a sequence parameter set in the bitstream.

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

determine, for a first conversion between a chroma block of a video and a bitstream of the video, that a prediction ~~model~~mode is applied to the chroma block, wherein in the ~~prediction~~prediction mode, prediction samples of the chroma block are ~~derived~~derived based on reconstructed luma samples of a collocated luma block of the chroma block;

derive parameters of the prediction ~~model~~mode based on neighbouring chroma samples of the chroma block and downsampled neighbouring top luma samples of the collocated luma block; and

perform the first conversion based on the parameters,

wherein in ~~response to~~case that the chroma block ~~having~~has a color ~~format~~format of 4:2:2, the downsampled neighbouring top luma samples are derived based on ~~the~~a nearest above neighbouring line of the collocated luma block;

wherein in case that a chroma collocated flag is equal to 0, the chroma block is not at a top coding tree unit boundary and the chroma block has a color format of 4:2:0,

$$(pY[SubWidthC * x - 1][-1] + pY[SubWidthC * x - 1][-2] + 2 * pY[SubWidthC * x][-1] + 2 * pY[SubWidthC * x][-2] + pY[SubWidthC * x +$$

$1][[-1] + pY[SubWidthC * x + 1][[-2] + 4) >> 3$ are used to derive at least one of downsampled neighbouring top luma samples,

wherein $pY[SubWidthC * x - 1][[-1]$, $pY[SubWidthC * x - 1][[-2]$, $pY[SubWidthC * x][[-1]$, $pY[SubWidthC * x][[-2]$, $pY[SubWidthC * x + 1][[-1]$ and $pY[SubWidthC * x + 1][[-2]$ denote luma samples from neighboring lines of the collocated luma block, and

wherein x is an integer and $SubWidthC$ is equal to 2 in case that the chroma block has a color format of 4:2:0.

20. ~~A non-transitory computer readable recording medium~~method of storing a
bitstream of a video which is generated by ~~a method performed by a video processing~~
apparatus to a non-transitory computer readable recording medium, ~~wherein the~~
method ~~comprises~~comprising:

determining, for a first conversion between a chroma block of the video and a
bitstream of the video for a chroma block of a video, that a prediction model~~mode~~is
applied to the chroma block, wherein in the ~~prediction~~prediction mode, prediction
samples of the chroma block are ~~derived~~derived based on reconstructed luma samples
of a collocated luma block of the chroma block;

deriving parameters of the prediction model~~mode~~based on neighbouring
chroma samples of the chroma block and downsampled neighbouring top luma
samples of the collocated luma block; and

generating the bitstream based on the parameters~~storing the bitstream to the~~
non-transitory computer readable recording medium,

wherein in response to case that the chroma block having~~has~~a color
~~format~~format of 4:2:2, the downsampled neighbouring top luma samples are derived
based on ~~the a~~a nearest above neighbouring line of the collocated luma block;

wherein in case that a chroma collocated flag is equal to 0, the chroma block is
not at a top coding tree unit boundary and the chroma block has a color format of
4:2:0,

$(pY[SubWidthC * x - 1][-1] + pY[SubWidthC * x - 1][-2] + 2 * pY[SubWidthC * x][-1] + 2 * pY[SubWidthC * x][-2] + pY[SubWidthC * x + 1][-1] + pY[SubWidthC * x + 1][-2] + 4) >> 3$ are used to derive at least one of downsampled neighbouring top luma samples,

wherein $pY[SubWidthC * x - 1][-1]$, $pY[SubWidthC * x - 1][-2]$, $pY[SubWidthC * x][-1]$, $pY[SubWidthC * x][-2]$, $pY[SubWidthC * x + 1][-1]$ and $pY[SubWidthC * x + 1][-2]$ denote luma samples from neighboring lines of the collocated luma block, and

wherein x is an integer and $SubWidthC$ is equal to 2 in case that the chroma block has a color format of 4:2:0.