

CLAIMS

1. A method of decoding video data, the method comprising:
 - receiving, from a video bitstream, a first flag that indicates whether transform skip is enabled;
 - receiving, from the video bitstream, based on the first flag indicating that transform skip is enabled, a second flag in a slice header of a slice of the video data indicating whether a first type of coding scheme or a second type of coding scheme is applied to residual values of blocks of the slice of the video data that are coded with transform skip, wherein, according to the first type of coding scheme, information indicative of a position of a last significant value is signaled in the video bitstream for blocks of the slice of the video data that are coded with transform skip in which no transform applied to the residual values of the blocks of the slice that are coded with transform skip, and wherein, according to the second type of coding scheme, information indicative of the position of the last significant value is not signaled in the video bitstream for blocks of the slice of the video data that is are coded with transform skip in which no transform applied to the residual values of the blocks of the slice that are coded with transform skip;
 - determining a type of coding scheme between the first type of coding scheme and the second type of coding scheme based on the second flag;
 - determining that a block of the video data is coded with transform skip, based in part on the first flag;
 - determining residual values for the block coded with transform skip based on the determined type of coding scheme, comprising, only if the first type of coding scheme is determined, parsing, from the video bitstream, the information indicative of the position of the last significant value of the residual for the block, wherein the residual values are indicative of a difference between the block and a prediction block; and
 - reconstructing the block based on the determined residual values and the prediction block, wherein, in reconstructing according to transform skip, the determined residual values are not transformed from a sample domain to a frequency domain.

2. The method of claim 1, wherein the first type of coding scheme is a transform coefficient coding (TRCC) scheme, and the second type of coding scheme is a transform skip residual coding (TSRC) scheme, wherein the first scheme and the second scheme including decoding a significance map for the block.
3. The method of claim 2, wherein, in the TRCC scheme, a number of flags that indicate whether a residual value of the residual values is greater than a threshold value is a first value, wherein, in the TSRC scheme, a number of flags that indicate whether the residual value of the residual values is greater than the threshold value is a second value, and wherein the first value is different than the second value.
4. The method of claim 1, wherein determining the residual values comprises determining the residual values without applying an inverse transform to the residual values.
5. The method of claim 1, wherein receiving the second flag comprises receiving the second flag based on a quantization parameter (QP) being less than or equal to a threshold value.

6. A method of encoding video data, the method comprising:
 - determining that a block of a slice of the video data is to be coded with transform skip;
 - determining residual values based on a difference between the block of the video data that is to be coded with transform skip and a prediction block;
 - determining a type of coding scheme between a first type of coding scheme and a second type of coding scheme to apply to the residual values, wherein, according to the first type of coding scheme, information indicative of a position of a last significant value is signaled in a video bitstream for the block, and wherein, according to the second type of coding scheme, information indicative of the position of the last significant value is not signaled in the video bitstream for the block;
 - encoding the residual values based on the determined type of coding scheme, wherein, in encoding according to transform skip, the residual values are not transformed from a sample domain to a frequency domain and no transform is applied to the residual values;
 - signaling, into a video bitstream, a first flag that indicates whether transform skip is enabled;
 - signaling, into the video bitstream, based on whether transform skip is enabled, a second flag in a slice header of the slice indicating whether the first type of coding scheme or the second type of coding scheme is applied to the residual values; and
 - only if the first type of coding scheme is determined for the block coded with transform skip, encoding, into the video bitstream, information indicative of the position of the last significant value of the residual values for the block.
7. The method of claim 6, wherein the first type of coding scheme is a transform coefficient coding (TRCC) scheme, and the second type of coding scheme is a transform skip residual coding (TSRC) scheme wherein the first scheme and the second scheme including decoding a significance map for the block.
8. The method of claim 6, wherein signaling the second flag comprises signaling the second flag based on a quantization parameter (QP) being less than or equal to a threshold value.
9. A device for decoding video data, the device comprising:
 - memory configured to store video data; and

processing circuitry coupled to the memory and configured to:

receive, from a video bitstream, a first flag that indicates whether transform skip is enabled;

receive, from the video bitstream, based on the first flag indicating that transform skip is enabled, a second flag in a slice header of a slice of the video data indicating whether a first type of coding scheme or a second type of coding scheme is applied to residual values of blocks of the slice of the video data that are coded with transform skip, wherein, according to the first type of coding scheme, information indicative of a position of a last significant value is signaled in the video bitstream for blocks of the slice of the video data that are coded with transform skip in which no transform applied to the residual values of the blocks of the slice that are coded with transform skip, and wherein, according to the second type of coding scheme, information indicative of the position of the last significant value is not signaled in the video bitstream for blocks of the slice of the video data that is are coded with transform skip in which no transform applied to the residual values of the blocks of the slice that are coded with transform skip;

determine a type of coding scheme between the first type of coding scheme and the second type of coding scheme based on the second flag;

determine that a block of the slice is coded with transform skip, based in part on the first flag;

determine the residual values for the block coded with transform skip based on the determined type of coding scheme, wherein the processing circuitry is further configured to parse, only if the first type of coding scheme is determined, from the video bitstream, the information indicative of the position of the last significant value of the residual, wherein the residual values are indicative of a difference between the block and a prediction block; and

reconstruct the block based on the determined residual values and the prediction block, wherein, in reconstructing according to transform skip, the determined residual values are not transformed from a sample domain to a frequency domain.

10. The device of claim 9, wherein the first type of coding scheme is a transform coefficient coding (TRCC) scheme, and the second type of coding scheme is a transform skip residual

coding (TSRC) scheme, wherein the first scheme and the second scheme including decoding a significance map for the block.

11. The device of claim 10, wherein, in the TRCC scheme, a number of flags that indicate whether a residual value of the residual values is greater than a threshold value is a first value, wherein, in the TSRC scheme, a number of flags that indicate whether the residual value of the residual values is greater than the threshold value is a second value, and wherein the first value is different than the second value.

12. The device of claim 9, wherein to determine the residual values, the processing circuitry is configured to determine the residual values without applying an inverse transform to the residual values.

13. The device of claim 9, wherein to receive the second flag, the processing circuitry is configured to receive the second flag based on a quantization parameter (QP) being less than or equal to a threshold value.

14. The device of claim 9, further comprising a display configured to display a picture that includes the reconstructed block.

15. The device of claim 9, wherein the device comprises one or more of a camera, a computer, a mobile device, a broadcast receiver device, a set-top box, or a wireless communication device.

16. A non-transitory computer-readable storage medium having stored thereon instructions that, when executed, cause one or more processors to:

receive, from a video bitstream, a first flag that indicates whether transform skip is enabled;

receive, from the video bitstream, based on the first flag indicating that transform skip is enabled, a second flag in a slice header of a slice of video data indicating whether a first type of coding scheme or a second type of coding scheme is applied to residual values of blocks of the slice of the video data that are coded with transform skip, wherein, according to the first type of

coding scheme, information indicative of a position of a last significant value is signaled in the video bitstream for blocks of the slice of the video data that are coded with transform skip in which no transform applied to the residual values of the blocks of the slice that are coded with transform skip, and wherein, according to the second type of coding scheme, information indicative of the position of the last significant value is not signaled in the video bitstream for blocks of the slice of the video data that is are coded with transform skip in which no transform applied to the residual values of the blocks of the slice that are coded with transform skip;

determine a type of coding scheme between the first type of coding scheme and the second type of coding scheme based on the second flag;

determine that a block of the slice is coded with transform skip, based in part on the first flag;

determine the residual values for the block coded with transform skip based on the determined type of coding scheme, wherein the instructions further cause the processors to parse, only if the first type of coding scheme is determined, from the video bitstream, the information indicative of the position of the last significant value of the residual, wherein the residual values are indicative of a difference between the block and a prediction block; and

reconstruct the block based on the determined residual values and the prediction block, wherein, in reconstructing according to transform skip, the residual values are not transformed from a sample domain to a frequency domain.

17. A device for decoding video data, the device comprising:

means for receiving, from a video bitstream, a first flag that indicates whether transform skip is enabled;

means for receiving, based on the first flag indicating that transform skip is enabled, a second flag in a slice header of a slice of the video data indicating whether a first type of coding scheme or a second type of coding scheme is applied to residual values of blocks of the slice of the video data that are coded with transform skip, wherein, according to the first type of coding scheme, information indicative of a position of a last significant value is signaled in the video bitstream for blocks of the slice of the video data that are coded with transform skip in which no transform applied to the residual values of the blocks of the slice that are coded with transform skip, and wherein, according to the second type of coding scheme, information indicative of the position of the last significant value is not signaled in the video bitstream for blocks of the slice

of the video data that is are coded with transform skip in which no transform applied to the residual values of the blocks of the slice that are coded with transform skip;

means for determining a type of coding scheme between the first type of coding scheme and the second type of coding scheme based on the second flag;

means for determining that a block of the slice is coded with transform skip, based in part on the first flag;

means for determining the residual values for the block coded with transform skip based on the determined type of coding scheme comprising means for parsing, only if the first type of coding scheme is determined, from the video bitstream, the information indicative of the position of the last significant value of the residual for the block, wherein the residual values are indicative of a difference between the block and a prediction block; and

means for reconstructing the block based on the determined residual values and the prediction block, wherein, in reconstructing according to transform skip, the determined residual values are not transformed from a sample domain to a frequency domain.

18. The method of claim 1, further comprising:

receiving, from the video bitstream and based in part on the first flag, a third flag, the third flag being a block level flag and indicative of whether the block of the video data is coded with transform skip,

wherein determining that the block of the video data is coded with transform skip comprises determining that the block of the video data is coded with transform skip based on the third flag.

19. The device of claim 9,

wherein the processing circuitry is configured to receive, from the video bitstream and based in part on the first flag, a third flag, the third flag being a block level flag and indicative of whether the block of the video data is coded with transform skip, and

wherein to determine that the block of the video data is coded with transform skip, the processing circuitry is configured to determine that the block of the video data is coded with transform skip based on the third flag.