

WHAT IS CLAIMED:

1. A computer-implemented method for video coding, comprising:
determining an end transform unit size for individual leaf nodes of a transform unit
quadtree pattern portion of a quadtree pattern associated with a target coding unit;
5 determining a context index value associated with the individual leaf nodes of the
transform unit quadtree pattern portion based at least in part on the end transform unit size; and
coding the target coding unit based at least in part on the determined context index value.
2. The method of claim 1, wherein the determination of the context index value is
10 performed as part of a context adaptive entropy coding operation.
3. The method of claim 1, wherein the determination of the context index value is
performed as part of a context adaptive entropy coding operation to code one or more transform
split flags.
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4. The method of claim 1, wherein the determination of the context index value is limited to
only three potential contexts.
5. The method of claim 1, wherein the determination of the context index value further
20 comprises:
implicitly inferring a split flag of one when the transform unit has a size in excess of
32x32, and wherein the inferred split flag of one is not explicitly coded; and
implicitly inferring a split flag of zero when the end transform unit has a size of 4x4, and
wherein the inferred split flag of zero is not explicitly coded.
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6. The method of claim 1, wherein the determination of the context index value further
comprises:
explicitly determining a context index value of zero when the end transform unit has a
size of 32x32;
30 explicitly determining a context index value of 1 when the end transform unit has a size
of 16x16; and
explicitly determining a context index value of 2 when the end transform unit has a size
of 8x8.

7. The method of claim 1, wherein the determination of the context index value further comprises:

implicitly inferring a split flag of one when the transform unit has a size in excess of 32x32, and wherein the inferred split flag of one is not explicitly coded;

5 implicitly inferring a split flag of zero when the end transform unit has a size of 4x4, and wherein the inferred split flag of zero is not explicitly coded;

explicitly determining a context index value of zero when the end transform unit has a size of 32x32;

10 explicitly determining a context index value of 1 when the end transform unit has a size of 16x16; and

explicitly determining a context index value of 2 when the end transform unit has a size of 8x8.

15 8. The method of claim 1, wherein the determination of the context index value further comprises:

implicitly inferring a split flag of one when the transform unit has a size in excess of 32x32, and wherein the inferred split flag of one is not explicitly coded;

implicitly inferring a split flag of zero when the end transform unit has a size of 4x4, and wherein the inferred split flag of zero is not explicitly coded;

20 explicitly determining a context index value of zero when the end transform unit has a size of 32x32;

explicitly determining a context index value of 1 when the end transform unit has a size of 16x16; and

25 explicitly determining a context index value of 2 when the end transform unit has a size of 8x8,

wherein the determination of the context index value is performed as part of a context adaptive entropy coding operation to code one or more transform split flags,

wherein the determination of the context index value is limited to only three potential contexts.

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9. A system for video coding on a computer, comprising:

a display device configured to present video data;

one or more processors communicatively coupled to the display device;

one or more memory stores communicatively coupled to the one or more processors;

- a context derivation logic module communicatively coupled to the one or more processors and configured to determine an end transform unit size for individual leaf nodes of a transform unit quadtree pattern portion of a quadtree pattern associated with a target coding unit, and determine a context index value associated with the individual leaf nodes of the transform unit quadtree pattern portion based at least in part on the end transform unit size; and
- 5 a coder communicatively coupled to the context derivation logic module and configured to code the target coding unit based at least in part on the determined context index value.
- 10 10. The system of claim 9, wherein the determination of the context index value is performed as part of a context adaptive entropy coding operation to code one or more transform split flags.
11. The system of claim 9, wherein the determination of the context index value is limited to only three potential contexts.
- 15 12. The system of claim 9, wherein context derivation logic module is further configured to: implicitly infer a split flag of one when the transform unit has a size in excess of 32x32, and wherein the inferred split flag of one is not explicitly coded; and implicitly infer a split flag of zero when the end transform unit has a size of 4x4, and wherein the inferred split flag of zero is not explicitly coded.
- 20 13. The system of claim 9, wherein context derivation logic module is further configured to: explicitly determine a context index value of zero when the end transform unit has a size of 32x32; explicitly determine a context index value of 1 when the end transform unit has a size of 16x16; and
- 25 explicitly determine a context index value of 2 when the end transform unit has a size of 8x8.
14. The system of claim 9, wherein context derivation logic module is further configured to: implicitly infer a split flag of one when the transform unit has a size in excess of 32x32, and wherein the inferred split flag of one is not explicitly coded;
- 30 implicitly infer a split flag of zero when the end transform unit has a size of 4x4, and wherein the inferred split flag of zero is not explicitly coded;

explicitly determine a context index value of zero when the end transform unit has a size of 32x32;

explicitly determine a context index value of 1 when the end transform unit has a size of 16x16; and

5 explicitly determine a context index value of 2 when the end transform unit has a size of 8x8,

wherein the determination of the context index value is performed as part of a context adaptive entropy coding operation to code one or more transform split flags,

10 wherein the determination of the context index value is limited to only three potential contexts.

15. A system comprising:

an antenna configured to receive an encoded bitstream of video data; and

15 a video decoder communicatively coupled to the antenna and configured to decode the encoded bitstream, wherein the video decoder is configured to:

determine an end transform unit size for individual leaf nodes of a transform unit quadtree pattern portion of a quadtree pattern associated with a target coding unit;

20 determine a context index value associated with the individual leaf nodes of the transform unit quadtree pattern portion based at least in part on the end transform unit size; and

code the target coding unit based at least in part on the determined context index value.

16. The system of claim 15, wherein the determination of the context index value is performed as part of a context adaptive entropy coding operation to code one or more transform split flags.

17. The system of claim 15, wherein the determination of the context index value is limited to only three potential contexts.

30 18. The system of claim 15, wherein the determination of the context index value further comprises:

implicitly inferring a split flag of one when the transform unit has a size in excess of 32x32, and wherein the inferred split flag of one is not explicitly coded; and

implicitly inferring a split flag of zero when the end transform unit has a size of 4x4, and wherein the inferred split flag of zero is not explicitly coded.

19. The system of claim 15, wherein the determination of the context index value further comprises:

explicitly determining a context index value of zero when the end transform unit has a size of 32x32;

explicitly determining a context index value of 1 when the end transform unit has a size of 16x16; and

10 explicitly determining a context index value of 2 when the end transform unit has a size of 8x8.

20. The system of claim 15, wherein the determination of the context index value further comprises:

15 implicitly inferring a split flag of one when the transform unit has a size in excess of 32x32, and wherein the inferred split flag of one is not explicitly coded;

implicitly inferring a split flag of zero when the end transform unit has a size of 4x4, and wherein the inferred split flag of zero is not explicitly coded;

20 explicitly determining a context index value of zero when the end transform unit has a size of 32x32;

explicitly determining a context index value of 1 when the end transform unit has a size of 16x16; and

explicitly determining a context index value of 2 when the end transform unit has a size of 8x8,

25 wherein the determination of the context index value is performed as part of a context adaptive entropy coding operation to code one or more transform split flags,

wherein the determination of the context index value is limited to only three potential contexts.

30 21. An article for video coding on a computer comprising a computer program product having stored therein instructions that, if executed, result in:

determining an end transform unit size for individual leaf nodes of a transform unit quadtree pattern portion of a quadtree pattern associated with a target coding unit;

determining a context index value associated with the individual leaf nodes of the transform unit quadtree pattern portion based at least in part on the end transform unit size; and coding the target coding unit based at least in part on the determined context index value.

5 22. The article of claim 21, wherein the determination of the context index value is performed as part of a context adaptive entropy coding operation to code one or more transform split flags.

23. The article of claim 21, wherein the determination of the context index value is limited to
10 only three potential contexts.

24. The article of claim 21, wherein the determination of the context index value further comprises:
implicitly inferring a split flag of one when the transform unit has a size in excess of
15 32x32, and wherein the inferred split flag of one is not explicitly coded; and
implicitly inferring a split flag of zero when the end transform unit has a size of 4x4, and wherein the inferred split flag of zero is not explicitly coded.

25. The article of claim 21, wherein the determination of the context index value further
20 comprises:
explicitly determining a context index value of zero when the end transform unit has a size of 32x32;
explicitly determining a context index value of 1 when the end transform unit has a size of 16x16; and
25 explicitly determining a context index value of 2 when the end transform unit has a size of 8x8.

26. The article of claim 21, wherein the determination of the context index value further comprises:
30 implicitly inferring a split flag of one when the transform unit has a size in excess of 32x32, and wherein the inferred split flag of one is not explicitly coded;
implicitly inferring a split flag of zero when the end transform unit has a size of 4x4, and wherein the inferred split flag of zero is not explicitly coded;

explicitly determining a context index value of zero when the end transform unit has a size of 32x32;

explicitly determining a context index value of 1 when the end transform unit has a size of 16x16; and

5 explicitly determining a context index value of 2 when the end transform unit has a size of 8x8,

wherein the determination of the context index value is performed as part of a context adaptive entropy coding operation to code one or more transform split flags,

10 wherein the determination of the context index value is limited to only three potential contexts.

27. An apparatus, comprising:

means for determining an end transform unit size for individual leaf nodes of a transform unit quadtree pattern portion of a quadtree pattern associated with a target coding unit, and for
15 determining a context index value associated with the individual leaf nodes of the transform unit quadtree pattern portion based at least in part on the end transform unit size; and

means for coding the target coding unit based at least in part on the determined context index value.

20 28. The apparatus of claim 27, wherein the determination of the context index value is performed as part of a context adaptive entropy coding operation to code one or more transform split flags, and wherein the determination of the context index value is limited to only three potential contexts.

WHAT IS CLAIMED:

1. A system comprising:
 - a display;
 - an antenna configured to receive an encoded bitstream of video data;
 - a memory to store the bitstream;
 - a processor communicatively coupled to the display, antenna, and memory; and
 - decoder circuitry to:
 - determine a region size for a node of a region quadtree, the region associated with a second region and the region associated with a video frame,
 - determine a context index value associated with an individual node of the region quadtree based at least in part on the region size, wherein to determine the context index value, the circuitry is to determine a value of $5 - \log_2(\text{region size})$, and
 - determine a split flag based at least in part on the determined context index value.
2. The system of claim 1, wherein the region comprises a transform unit (TU), the second region comprises a coding unit (CU), the CU comprises a partition of a picture, and the TU comprises a whole or part of the CU.
3. The system of claim 1, wherein the determination of the context index value is performed as part of a context adaptive entropy coding operation to determine one or more transform split flags.
4. The system of claim 1, wherein the determination of the context index value is performed as part of an entropy context-adaptive binary arithmetic coding (CABAC) coding of transform split flags to determine one or more transform split flags.
5. The system of claim 1, wherein the context index value comprises one of three potential values.

6. At least one non-transitory article comprising a computer program stored thereon having instructions that, if executed by the computer, cause the computer to:

determine a region size for a node of a region quadtree, the region associated with a second region and the region associated with a video frame,

determine a context index value associated with an individual node of the region quadtree based at least in part on the region size, wherein to determine the context index value, the circuitry is to determine a value of $5 - \log_2(\text{region size})$, and

determine a split flag based at least in part on the determined context index value.

7. The non-transitory article of claim 6, wherein the region comprises a transform unit (TU), the second region comprises a coding unit (CU), the CU comprises a partition of a picture, and the TU comprises a whole or part of the CU.

8. The non-transitory article of claim 6, wherein the determination of the context index value is performed as part of a context adaptive entropy coding operation to determine one or more transform split flags.

9. The non-transitory article of claim 6, wherein the determination of the context index value is performed as part of an entropy context-adaptive binary arithmetic coding (CABAC) coding of transform split flags to determine one or more transform split flags.

10. The non-transitory article of claim 6, wherein the context index value comprises one of three potential values.

11. An apparatus, comprising:
circuitry to:

determine a transform unit (TU) size for a node of a TU quadtree, the TU associated with a coding unit (CU) and the TU associated with a video frame,

determine a context index value associated with an individual node of the TU quadtree based at least in part on the TU size, wherein to determine the context index

value, the circuitry is to determine a difference between a binary logarithm of a maximum TU size and a binary logarithm of the transform unit size, and
determine a transform split flag based at least in part on the determined context index value.

12. The apparatus of claim 11, wherein the determination of the context index value is performed as part of a context adaptive entropy coding operation to determine one or more transform split flags.

13. The apparatus of claim 11, wherein the determination of the context index value is performed as part of an entropy Context-adaptive binary arithmetic coding (CABAC) coding of transform split flags to determine one or more transform split flags.

14. The apparatus of claim 11, wherein the circuitry is to:
determine a first split flag having a first value when the transform unit has a size in excess of a first size, and wherein the first split flag is not explicitly provided in a bitstream; and
determine a second split flag of second value when the transform unit has a second size, and wherein the second split flag is not explicitly provided in a bitstream.

15. The apparatus of claim 11, further comprising a video encoder and wherein the circuitry is part of the video encoder.

16. A system comprising:
a display;
an antenna configured to receive an encoded bitstream of video data;
a memory to store the bitstream;
a processor communicatively coupled to the display, antenna, and memory; and
decoder circuitry to:
determine a transform unit (TU) size for a node of a TU quadtree, the TU associated with a coding unit (CU) and the TU associated with a video frame,

determine a context index value associated with an individual node of the TU quadtree based at least in part on the TU size, wherein to determine the context index value, the circuitry is to determine a difference between a binary logarithm of a maximum TU size and a binary logarithm of the transform unit size, and

determine a transform split flag based at least in part on the determined context index value.

17. The apparatus of claim 16, wherein the determination of the context index value is performed as part of a context adaptive entropy coding operation to determine one or more transform split flags.

18. The apparatus of claim 16, wherein the determination of the context index value is performed as part of an entropy Context-adaptive binary arithmetic coding (CABAC) coding of transform split flags to determine one or more transform split flags.

19. The apparatus of claim 16, wherein the decoder circuitry is to:

determine a first split flag having a first value when the transform unit has a first size, and wherein the first split flag is not explicitly provided in the bitstream; and

determine a second split flag of second value when the transform unit has a second size, and wherein the second split flag is not explicitly provided in the bitstream.

20. The apparatus of claim 19, wherein the first size is 64x64 and the second size 4x4.

21. At least one non-transitory article comprising a computer program stored thereon having instructions that, if executed by the computer, cause the computer to:

determine a transform unit (TU) size for a node of a TU quadtree, the TU associated with a coding unit (CU) and the TU associated with a video frame,

determine a context index value associated with an individual node of the TU quadtree based at least in part on the TU size, wherein to determine the context index value, the circuitry is to determine a difference between a binary logarithm of a maximum TU size and a binary logarithm of the transform unit size, and

determine a transform split flag based at least in part on the determined context index value.

22. The non-transitory article of claim 21, wherein the determination of the context index value is performed as part of a context adaptive entropy coding operation to determine one or more transform split flags.

23. The non-transitory article of claim 21, wherein the determination of the context index value is performed as part of an entropy Context-adaptive binary arithmetic coding (CABAC) coding of transform split flags to determine one or more transform split flags.

24. The non-transitory article of claim 21, wherein the decoder circuitry is to:

determine a first split flag having a first value when the transform unit has a first size, and wherein the first split flag is not explicitly provided in the bitstream; and

determine a second split flag of second value when the transform unit has a second size, and wherein the second split flag is not explicitly provided in the bitstream.

25. The non-transitory article of claim 24, wherein the first size is 64x64 and the second size 4x4.