

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.
- 15 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.
- 25 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

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. 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.

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.

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 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; 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

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:

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

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.

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.

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

24. The article of claim 21, 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; 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.

20 25. The article of claim 21, 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

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 is:

1. An apparatus, comprising:

circuitry to:

5 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 a context index value, the circuitry is to determine a value of $5 - \log_2(\text{TU size})$; and

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

2. The apparatus 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
15 transform split flags.

3. The apparatus 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.

20 4. The apparatus of claim 1, wherein the context index value comprises one of three potential values.

5. The apparatus of claim 1, wherein the circuitry is to:

25 determine a split flag of 1 when the transform unit has a size in excess of 32×32 , and wherein the split flag of 1 is not explicitly provided in a bitstream; and

 determine a split flag of 0 when the transform unit has a size of 4×4 , and wherein the split flag of 0 is not explicitly provided in a bitstream.

6. The apparatus of claim 1, wherein the circuitry is to:

5 determine a split flag of 1 when the transform unit has a size in excess of a first size,
and wherein the split flag of 1 is not explicitly provided in a bitstream; and

 determine a split flag of 0 when the transform unit has a second size, and wherein the
split flag of 0 is not explicitly provided in a bitstream.

7. The apparatus of claim 1, wherein the circuitry is to:

10 determine a context index value of 0 when the transform unit has a size of 32×32 ;
 determine a context index value of 1 when the transform unit has a size of 16×16 ;

and

 determine a context index value of 2 when the transform unit has a size of 8×8 .

15 8. The apparatus of claim 1, wherein the circuitry is to:

 determine a split flag of 1 when the transform unit has a size in excess of 32×32 , and
wherein the split flag of 1 is not explicitly provided in a bitstream;

 determine a split flag of 0 when the transform unit has a size of 4×4 , and wherein the
split flag of 0 is not explicitly provided in a bitstream;

20 determine a context index value of 0 when the transform unit has a size of 32×32 ;

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

 determine a context index value of 2 when the transform unit has a size of 8×8 .

9. The apparatus of claim 1, wherein circuitry comprises hardware, firmware, software
25 executed by a processor, or any combination thereof.

10. The apparatus of claim 1, further comprising a video encoder and wherein the circuitry is
part of the video encoder.

11. The apparatus of claim 1, further comprising a video decoder and wherein the circuitry is part of the video decoder.

12. The apparatus of claim 1, wherein: the CU comprises a partition of a picture and the TU comprises a whole or part of the CU.

13. The apparatus of claim 12, wherein: the TU comprises a square shaped region.

14. A system comprising:

10 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:

15 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 a context index value, the circuitry is to determine a value of $5 - \log_2(\text{TU size})$; and

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

15. The system of claim 14, 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.

16. The system of claim 14, wherein the determination of the context index value is performed as part of an entropy Context-adaptive binary arithmetic coding (CABAC) of transform split flags to determine one or more transform split flags.

17. The system of claim 14, wherein the context index value comprises one of three potential values.

5 18. The system of claim 14, wherein the circuitry is to:

determine a split flag of a value of 1 when the transform unit has a size in excess of a first size, and wherein the split flag of 1 is not explicitly provided in the bitstream and

determine a split flag value of 0 when the transform unit has a second size, and wherein the split flag value of 0 is not explicitly provided in the bitstream.

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19. The system of claim 14, wherein the circuitry is to:

determine a context index value of 0 when the transform unit has a size of 32×32 ;

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

determine a context index value of 2 when the transform unit has a size of 8×8 .

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20. The system of claim 14, wherein the circuitry is to:

determine a split flag of 1 when the transform unit has a size in excess of 32×32 , and wherein the split flag of 1 is not explicitly provided in the bitstream;

20 determine a split flag of 0 when the transform unit has a size of 4×4 , and wherein the split flag of 0 is not explicitly provided in the bitstream;

determine a context index value of 0 when the transform unit has a size of 32×32 ;

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

determine a context index value of 2 when the transform unit has a size of 8×8 ,

25 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, and

wherein the context index value comprises one of three potential values.

21. The apparatus of claim 14, wherein: the CU comprises a partition of a picture and the TU comprises a whole or part of the CU.

22. 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 a context index value, the computer is to determine a value of $5 - \log_2(\text{TU size})$; and determine a transform split flag based at least in part on the determined context index value.

23. The non-transitory article of claim 22, 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.

24. The non-transitory article of claim 22, 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.

25. The non-transitory article of claim 22, wherein the context index value comprises one of three potential values.

26. The non-transitory article of claim 22, further comprising instructions stored thereon, that, if executed by the computer, cause the computer to: determine a split flag of a value of 1 when the transform unit has a size in excess of a first size, and wherein the split flag of 1 is not explicitly provided in a bitstream; and determine a split flag value of 0 when the transform unit has a second size, and wherein the split flag value of 0 is not explicitly provided in a bitstream.

27. The non-transitory article of claim 22, further comprising instructions stored thereon, that, if executed by the computer, cause the computer to: determine a context index value of 0 when the transform unit has a size of 32×32 ; determine a context index value of 1 when

the transform unit has a size of 16×16 ; and determine a context index value of 2 when the transform unit has a size of 8×8 .

28. The non-transitory article of claim 22, further comprising instructions stored thereon, that, if executed by the computer, cause the computer to: determine a split flag of 1 when the transform unit has a size in excess of 32×32 , and wherein the split flag of 1 is not explicitly provided in a bitstream; determine a split flag of 0 when the transform unit has a size of 4×4 , and wherein the split flag of 0 is not explicitly provided in a bitstream; determine a context index value of 0 when the transform unit has a size of 32×32 ; determine a context index value of 1 when the transform unit has a size of 16×16 ; and determine a context index value of 2 when the transform unit has a size of 8×8 , 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, and wherein the context index value comprises one of three potential values.

29. The non-transitory article of claim 22, wherein: the CU comprises a partition of a picture and the TU comprises a whole or part of the CU.

30. A computer-implemented method, the method comprising:

determining 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,

determining a context index value associated with an individual node of the TU quadtree based at least in part on the TU size, wherein determining a context index value comprises determining a value of $5 - \log_2(\text{TU size})$; and

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

31. The method of claim 30, wherein the context index value comprises one of three potential values.

32. The method of claim 30, wherein determining the context index value is part of a context

adaptive entropy coding operation to determine one or more transform split flags.

33. The method of claim 30, wherein determining the context index value is part of an entropy Context-adaptive binary arithmetic coding (CABAC) coding of transform split flags
5 to determine one or more transform split flags.

34. The method of claim 30, further comprising:

determining a split flag of a value of 1 when the transform unit has a size in excess of a first size, and wherein the split flag of 1 is not explicitly provided in a bitstream; and

10 determining a split flag value of 0 when the transform unit has a second size, and wherein the split flag value of 0 is not explicitly provided in a bitstream.

35. The method of claim 30, further comprising:

determining a context index value of 0 when the transform unit has a size of 32×32 ;

15 determining a context index value of 1 when the transform unit has a size of 16×16 ;
and

determining a context index value of 2 when the transform unit has a size of 8×8 .

36. The method of claim 30, wherein: the CU comprises a partition of a picture and the TU
20 comprises a whole or part of the CU.

37. An apparatus, comprising:

circuitry to:

25 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 a 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.

38. The apparatus of claim 37, 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
5 the TU comprises a whole or part of the CU.

39. The apparatus of claim 37, 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.
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40. The apparatus of claim 37, 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.

15 41. The apparatus of claim 37, wherein the context index value comprises one of three potential values.