CLAIMS

1. A method of decoding video data, the method comprising:

decoding a first prefix code that represents a first portion of a position of a last non-zero coefficient in a X direction based on a threshold for performing a zero-out process, wherein the threshold is 32, and wherein decoding the prefix code that represents the first portion of the position of the last non-zero coefficient based on the threshold for performing a zero-out process comprises decoding the prefix code based on a range of 24-31;

decoding a first suffix code that represents a second portion of the position of the last non-zero coefficient in the X direction;

decoding a second prefix code that represents a first portion of the position of the last non-zero coefficient in a Y direction based on the threshold for performing a zero-out process;

decoding a second suffix code that represents a second portion of the position of the last non-zero coefficient in the Y direction;

determining a first region of a transform unit in which transform coefficients are subject to zero-out based on the threshold;

determining a second region of the transform unit in which transform coefficients are not subject to zero-out based on the threshold; and

scanning only the second region of the transform unit starting at the position of the last non-zero coefficient.

2. The method of claim 1, further comprising:

determining a context for entropy decoding one or more syntax elements indicating a position of a last non-zero coefficient based on an entire size of the transform unit.

3. The method of claim 1, wherein determining the first region of the transform unit in which transform coefficients are subject to zero-out comprises:

determining the first region of the transform unit in which transform coefficients are subject to zero-out based on positions of the transform coefficients in the transform unit relative to the threshold.

4. The method of claim 3, wherein determining the first region of the transform unit in

which transform coefficients are subject to zero-out based on positions of the transform coefficients in the transform unit comprises:

determining that the first region includes transform coefficients in the transform unit that are beyond the first 32 rows or columns of the transform unit are subject to zero-out.

5. The method of claim 1, wherein scanning only the second region of the transform unit starting at the position of the last non-zero coefficient comprises:

scanning only the second region of the transform unit coefficient group by coefficient group.

6. The method of claim 1, wherein the transform unit has a width or a length of 64 transform coefficients, and wherein the second region is a 32x32 region of the transform unit.

7. The method of claim 1, further comprising:

inverse transforming the transform unit to create residual data;

determining a prediction block;

adding the residual data to the prediction block to decode a block of video data; and

displaying a picture that includes the decoded block of video data.

8. An apparatus configured to decode video data, the apparatus comprising:

a memory configured to store a transform unit of video data; and

one or more processors implemented in circuitry and in communication with the memory, the one or more processors configured to:

decode a first prefix code that represents a first portion of a position of a last non-zero coefficient in a X direction based on a threshold for performing a zero-out process, wherein the threshold is 32, and wherein to decode the prefix code that represents the first portion of the position of the last non-zero coefficient based on the threshold for performing a zero-out process, the one or more processors are further configured to decode the prefix code based on a range of 24-31;

decode a first suffix code that represents a second portion of the position of the last non-zero coefficient in the X direction;

decode a second prefix code that represents a first portion of the position of the

last non-zero coefficient in a Y direction based on the threshold for performing a zero-out process;

decode a second suffix code that represents a second portion of the position of the last non-zero coefficient in the Y direction;

determine a first region of a transform unit in which transform coefficients are subject to zero-out based on the threshold;

determine a second region of the transform unit in which transform coefficients are not subject to zero-out based on the threshold; and

scan only the second region of the transform unit starting at the position of the last non-zero coefficient.

9. The apparatus of claim 8, wherein the one or more processors are further configured to:

determine a context for entropy decoding one or more syntax elements indicating a position of a last non-zero coefficient based on an entire size of the transform unit.

10. The apparatus of claim 8, wherein to determine the first region of the transform unit in which transform coefficients are subject to zero-out, the one or more processors are further configured to:

determine the first region of the transform unit in which transform coefficients are subject to zero-out based on positions of the transform coefficients in the transform unit relative to the threshold.

11. The apparatus of claim 10, wherein to determine the first region of the transform unit in which transform coefficients are subject to zero-out based on positions of the transform coefficients in the transform unit, the one or more processors are further configured to:

determine that the first region includes transform coefficients in the transform unit that are beyond the first 32 rows or columns of the transform unit are subject to zero-out.

12. The apparatus of claim 8, wherein to scan only the second region of the transform unit starting at the position of the last non-zero coefficient, the one or more processors are further configured to:

scan only the second region of the transform unit coefficient group by coefficient group.

13. The apparatus of claim 8, wherein the transform unit has a width or a length of 64 transform coefficients, and wherein the second region is a 32x32 region of the transform unit.

14. The apparatus of claim 8, wherein the one or more processors are further configured to:

inverse transform the transform unit to create residual data;

determine a prediction block;

add the residual data to the prediction block to decode a block of video data; and

display a picture that includes the decoded block of video data.

15. An apparatus configured to decode video data, the apparatus comprising:

means for decoding a first prefix code that represents a first portion of a position of a last non-zero coefficient in a X direction based on a threshold for performing a zero-out process, wherein the threshold is 32, and wherein the means for decoding the prefix code that represents the first portion of the position of the last non-zero coefficient based on the threshold for performing a zero-out process comprises means for decoding the prefix code based on a range of 24-31;

means for decoding a first suffix code that represents a second portion of the position of the last non-zero coefficient in the X direction;

means for decoding a second prefix code that represents a first portion of the position of the last non-zero coefficient in a Y direction based on the threshold for performing a zero-out process;

means for decoding a second suffix code that represents a second portion of the position of the last non-zero coefficient in the Y direction;

means for determining a first region of a transform unit in which transform coefficients are subject to zero-out based on the threshold;

means for determining a second region of the transform unit in which transform coefficients are not subject to zero-out based on the threshold; and

means for scanning only the second region of the transform unit starting at the position of the last non-zero coefficient.

16. The apparatus of claim 15, further comprising:

means for determining a context for entropy decoding one or more syntax elements indicating a position of a last non-zero coefficient based on an entire size of the transform unit.

17. The apparatus of claim 15, wherein the means for determining the first region of the transform unit in which transform coefficients are subject to zero-out comprises:

means for determining the first region of the transform unit in which transform coefficients are subject to zero-out based on positions of the transform coefficients in the transform unit relative to the threshold.

18. The apparatus of claim 17, wherein the means for determining the first region of the transform unit in which transform coefficients are subject to zero-out based on positions of the transform coefficients in the transform unit comprises:

means for determining that the first region includes transform coefficients in the transform unit that are beyond the first 32 rows or columns of the transform unit are subject to zero-out.

19. The apparatus of claim 15, wherein the means for scanning only the second region of the transform unit starting at the position of the last non-zero coefficient comprises:

means for scanning only the second region of the transform unit coefficient group by coefficient group.

20. The apparatus of claim 15, wherein the transform unit has a width or a length of 64 transform coefficients, and wherein the second region is a 32x32 region of the transform unit.

21. The apparatus of claim 15, further comprising:

means for inverse transforming the transform unit to create residual data;

means for determining a prediction block;

means for adding the residual data to the prediction block to decode a block of video data; and

means for displaying a picture that includes the decoded block of video data.

22. A non-transitory computer-readable storage medium storing instructions that, when executed, cause one or more processors of a device configured to decode video data to:

decode a first prefix code that represents a first portion of a position of a last non-zero coefficient in a X direction based on a threshold for performing a zero-out process, wherein the threshold is 32, and wherein to decode the prefix code that represents the first portion of the position of the last non-zero coefficient based on the threshold for performing a zero-out process, the instructions further cause the one or more processors to decode the prefix code based on a range of 24-31;

decode a first suffix code that represents a second portion of the position of the last non-zero coefficient in the X direction;

decode a second prefix code that represents a first portion of the position of the last non-zero coefficient in a Y direction based on the threshold for performing a zero-out process;

decode a second suffix code that represents a second portion of the position of the last non-zero coefficient in the Y direction;

determine a first region of a transform unit in which transform coefficients are subject to zero-out based on the threshold;

determine a second region of the transform unit in which transform coefficients are not subject to zero-out based on the threshold; and

scan only the second region of the transform unit starting at the position of the last non-zero coefficient.

23. The non-transitory computer-readable storage medium of claim 22, wherein the instructions further cause the one or more processors to:

determine a context for entropy decoding one or more syntax elements indicating a position of a last non-zero coefficient based on an entire size of the transform unit.

24. The non-transitory computer-readable storage medium of claim 22, wherein to determine the first region of the transform unit in which transform coefficients are subject to zero-out, the instructions further cause the one or more processors to:

determine the first region of the transform unit in which transform coefficients are subject to zero-out based on positions of the transform coefficients in the transform unit relative to the threshold.

25. The non-transitory computer-readable storage medium of claim 24, wherein to determine the first region of the transform unit in which transform coefficients are subject to zero-out based on positions of the transform coefficients in the transform unit, the instructions further cause the one or more processors to:

determine that the first region includes transform coefficients in the transform unit that are beyond the first 32 rows or columns of the transform unit are subject to zero-out.

26. The non-transitory computer-readable storage medium of claim 22, wherein to scan only the second region of the transform unit starting at the position of the last non-zero coefficient, the instructions further cause the one or more processors to:

scan only the second region of the transform unit coefficient group by coefficient group.

27. The non-transitory computer-readable storage medium of claim 22, wherein the transform unit has a width or a length of 64 transform coefficients, and wherein the second region is a 32x32 region of the transform unit.

28. The non-transitory computer-readable storage medium of claim 22, wherein the instructions further cause the one or more processors to:

inverse transform the transform unit to create residual data;

determine a prediction block;

add the residual data to the prediction block to decode a block of video data; and

display a picture that includes the decoded block of video data.