CLAIMS

1. A method of decoding video data, the method comprising: receiving a bitstream that includes a sequence of bits that forms a representation of a coded picture of the video data; determining a partitioning of the coded picture of the video data into a plurality of blocks using three or more different partition structures, wherein at least three of the three or more different partition structures may be used for at least one depth of a tree structure that represents how a particular block of the coded picture of the video data is partitioned, and wherein the three or more different partition structures include a triple-tree partition structure; determining a partitioning of at least one block of the coded picture of the video data using a triple-tree partition type of the triple-tree partition structure, wherein the triple-tree partition structure divides the at least one block into three sub-blocks without dividing the at least one block through the center of the at least one block; and reconstructing the plurality of blocks of the coded picture of the video data.

2. The method of claim 1, wherein a center block of the three sub-blocks has a size equal to the sum of a size of the other two of the three sub-blocks, and wherein the other two of the three sub-blocks have the same size.

3. The method of claim 1, wherein the three or more different partition structures further include a quad-tree partition structure and a binary-tree partition structure.

4. The method of claim 3, wherein partition types of the quad-tree partition structure include one or more of a squared quad-tree partition type or a rectangular quad-tree partition type, wherein partition types of the binary-tree partition structure include one or more of a symmetric binary-tree partition type or non-symmetric binary-tree partition type, wherein partition types for the triple-tree partition structure include one or more of a symmetric triple-tree partition type or a non-symmetric triple-tree partition type.

5. The method of claim 1, further comprising: receiving, from the bitstream, syntax elements indicating a plurality of supported partition types of the three or more different partition structures; and determining the partitioning of the coded picture of the video data based on the received syntax element.

6. The method of claim 5, wherein receiving the syntax elements comprises receiving the syntax elements from the bitstream, including receiving the syntax elements in one or more of adaptive parameter set (APS), a sequence parameter set (SPS), a picture parameter set (PPS), or a slice header.

7. The method of claim 1, the method further comprising: receiving a syntax element indicating that the at least one block of the coded picture of the video data is partitioned using the triple-tree partition structure with a symmetric triple-tree partition type; and determining the partitioning of the at least one block of the coded picture of the video data such that two

sub-blocks of the at least one block have the same size.

8. The method of claim 1, wherein the plurality of blocks includes a block corresponding to a leaf node, the method further comprising: receiving a syntax element from the bitstream, the syntax element having a first value indicating a transform having a same size as the block corresponding to the leaf node is applied to residual data of the block corresponding to the leaf node, the syntax element having a second value indicating multiple transforms having smaller sizes than the block corresponding to the leaf node are applied to sub-blocks of the residual data of the block corresponding to the leaf node; and applying one or more transforms to the block corresponding to the leaf node in accordance with the syntax element.

9. A method of encoding video data, the method comprising: receiving a picture of the video data; partitioning the picture of the video data into a plurality of blocks using three or more different partition structures, wherein at least three of the three or more different partition structures may be used for at least one depth of a tree structure that represents how a particular block of the picture of the video data is partitioned, and wherein the three or more different partition structures include a triple-tree partition structure; partitioning at least one block of the picture of the video data using a triple-tree partition type of the triple-tree partition structure, wherein the triple-tree partition structure divides the at least one block into three sub-blocks without dividing the at least one block through the center of the at least one block; and encoding the plurality of blocks of the picture of the video data.

10. The method of claim 9, wherein a center block of the three sub-blocks has a size equal to the sum of a size of the other two of the three sub-blocks, and wherein the other two of the three sub-blocks have the same size.

11. The method of claim 9, wherein the three or more different partition structures further include a quad-tree partition structure and a binary-tree partition structure.

12. The method of claim 11, wherein partition types of the quad-tree partition structure include one or more of a squared quad-tree partition type or a rectangular quad-tree partition type, wherein partition types of the binary-tree partition structure include one or more of a symmetric binary-tree partition type or non-symmetric binary-tree partition type, wherein partition types for the triple-tree partition structure include one or more of a symmetric triple-tree partition type or a non-symmetric triple-tree partition type.

13. The method of claim 9, further comprising: generating, in a bitstream, syntax elements indicating a plurality of supported partition types of the three or more different partition structures.

14. The method of claim 13, wherein generating the syntax elements comprises generating the syntax elements from a bitstream, including generating the syntax elements in one or more of adaptive parameter set (APS), a sequence parameter set (SPS), a picture parameter set (PPS), or a slice header.

15. The method of claim 9, the method further comprising: generating a syntax element indicating that the at least one block of the picture of the video data is partitioned using the triple-tree partition structure with a symmetric triple-tree partition type; and partitioning the at least one block of the picture of the video data such that two sub-blocks of the particular block have the same size.

16. The method of claim 9, wherein the plurality of blocks includes a block corresponding to a leaf node, further comprising: generating a syntax element in a bitstream, the syntax element having a first value indicating a transform having a same size as the block corresponding to the leaf node is applied to residual data of the block corresponding to the leaf node, the syntax element having a second value indicating multiple transforms having smaller sizes than the block corresponding to the leaf node are applied to sub-blocks of the residual data of the block corresponding to the leaf node; and applying one or more transforms to the residual data of the block corresponding to the leaf node in accordance with the syntax element.

17. An apparatus configured to decode video data, the apparatus comprising: a memory configured to store the video data; and video decoding circuitry configured to: receive a bitstream that includes a sequence of bits that forms a representation of a coded picture of the video data; determine a partitioning of the coded picture of the video data into a plurality of blocks using three or more different partition structures, wherein at least three of the three or more different partition structures may be used for at least one depth of a tree structure that represents how a particular block of the coded picture of the video data is partitioned, and wherein the three or more different partition structures include a triple-tree partition structure; determine a partitioning of at least one block of the coded picture of the video data using a triple-tree partition type of the triple-tree partition structure, wherein the triple-tree partition structure divides the at least one block into three sub-blocks without dividing the at least one block through the center of the at least one block; and reconstruct the plurality of blocks of the coded picture of the video data.

18. The apparatus of claim 17, wherein a center block of the three sub-blocks has a size equal to the sum of a size of the other two of the three sub-blocks, and wherein the other two of the three sub-blocks have the same size.

19. The apparatus of claim 17, wherein the three or more different partition structures further include a quad-tree partition structure and a binary-tree partition structure.

20. The apparatus of claim 19, wherein partition types of the quad-tree partition structure include one or more of a squared quad-tree partition type or a rectangular quad-tree partition type, wherein partition types of the binary-tree partition structure include one or more of a symmetric binary-tree partition type or non-symmetric binary-tree partition type, wherein partition types for the triple-tree partition structure include one or more of a symmetric triple-tree partition type or a non-symmetric triple-tree partition type.

21. The apparatus of claim 17, wherein the video decoding circuitry is further configured to: receive, from the bitstream, syntax elements indicating a plurality of supported partition types of the three or more different partition structures; and determine the partitioning of the coded picture of the video data based on the received syntax element.

22. The apparatus of claim 21, wherein the video decoding circuitry is further configured to receive the syntax elements, from the bitstream, including receiving the syntax elements in one or more of adaptive parameter set (APS), a sequence parameter set (SPS), a picture parameter set (PPS), or a slice header.

23. The apparatus of claim 17, wherein the video decoding circuitry is further configured to: receive a syntax element indicating that the at least one block of the coded picture of the video data is partitioned using the triple-tree partition structure with a symmetric triple-tree partition type; and determine the partitioning of the at least one block of the coded picture of the video data such that two sub-blocks of the at least one block have the same size.

24. The apparatus of claim 17, wherein the plurality of blocks includes a block corresponding to a leaf node, and wherein the video decoding circuitry is further configured to: receive a syntax element from the bitstream, the syntax element having a first value indicating a transform having a same size as the block corresponding to the leaf node is applied to residual data of the block corresponding to the leaf node, the syntax element having a second value indicating multiple transforms having smaller sizes than the block corresponding to the leaf node are applied to sub-blocks of the residual data of the block corresponding to the leaf node; and apply one or more transforms to the block corresponding to the leaf node in accordance with the syntax element.

25. An apparatus configured to decode video data, comprising: means for receiving a bitstream that includes a sequence of bits that forms a representation of a coded picture of the video data; means for determining a partitioning of the coded picture of the video data into a plurality of blocks using three or more different partition structures, wherein at least three of the three or more different partition structures may be used for at least one depth of a tree structure that represents how a particular block of the coded picture of the video data is partitioned, and wherein the three or more different partition structures include a triple-tree partition structure; means for determining a partitioning of at least one block of the coded picture of the video data using a triple-tree partition type of the triple-tree partition structure, wherein the triple-tree partition structure divides the at least one block into three sub-blocks without dividing the at least one block through the center of the at least one block; and means for reconstructing the plurality of blocks of the coded picture of the video data.

26. The apparatus of claim 25, wherein a center block of the three sub-blocks has a size equal to the sum of a size of the other two of the three sub-blocks, and wherein the other two of the three sub-blocks have the same size.