WHAT IS CLAIMED IS:

1. A method for point cloud coding, comprising:

receiving, by a processor and from a coded bitstream for a point cloud, encoded data for nodes in an octree structure for the point cloud, the nodes in the octree structure corresponding to three dimensional (3D) partitions of a space of the point cloud, sizes of the nodes being associated with partition depths in the octree structure;

decoding, by the processor and from the encoded data, occupancy codes for the nodes, wherein the decoding the occupancy codes includes

decoding a first portion of the occupancy codes for larger nodes in the nodes using a first coding order, the sizes of the larger nodes being larger than a threshold node size for coding order change, and

decoding a second portion and a third portion of the occupancy codes for different sets of nodes of smaller nodes in the nodes using a second coding order that is different from the first coding order, the sizes of the smaller nodes being equal to or smaller than the threshold node size for coding order change;

reconstructing, by the processor, the octree structure based on the decoded occupancy codes for the nodes; and

reconstructing, by the processor, the point cloud based on the octree structure.

2. The method of claim 1, further comprising:

decoding a first set of occupancy codes for a first set of nodes of the smaller nodes in a first sub octree with a first node being a root of the first sub octree; and

decoding a second set of occupancy codes for a second set of nodes of the smaller nodes in a second sub octree with a second node being a root of the second sub octree, the first node and the second node having a same node size.

3. The method of claim 2, further comprising:

decoding the first set of occupancy codes for the first set of nodes in the first sub octree in parallel with the decoding of the second set of occupancy codes for the second set of nodes in the second sub octree.

4. The method of claim 2, further comprising:

decoding, using a first coding mode, the first set of occupancy codes for the first set of nodes in the first sub octree; and

decoding, using a second coding mode, the second set of occupancy codes for the second set of nodes in the second sub octree.

5. The method of claim 4, further comprising:

decoding, from the coded bitstream, a first index that is indicative of the first coding mode for the first sub octree; and

decoding, from the coded bitstream, a second index that is indicative of the second coding mode for the second sub octree.

6. The method of claim 1, wherein the first coding order is breadth first coding order and the second coding order is depth first coding order.

7. The method of claim 1, wherein the first coding order is depth first coding order and the second coding order is breadth first coding order.

8. The method of claim 1, further comprising:

determining the threshold node size for coding order change based on a signal in the coded bitstream for the point cloud.

9. The method of claim 8, further comprising:

decoding a control signal from the coded bitstream for the point cloud, the control signal being indicative of a change of coding order.

10. An apparatus for point cloud coding, comprising:

processing circuitry configured to:

receive, from a coded bitstream for a point cloud, encoded data for nodes in an octree structure for the point cloud, the nodes in the octree structure corresponding to three dimensional (3D) partitions of a space of the point cloud, sizes of the nodes being associated with partition depths in the octree structure;

decode, from the encoded data, occupancy codes for the nodes, wherein the decoding the occupancy codes includes

decoding a first portion of the occupancy codes for larger nodes in the nodes using a first coding order, the sizes of the larger nodes being larger than a threshold node size for coding order change, and

decoding a second portion and a third portion of the occupancy codes for different sets of nodes of smaller nodes in the nodes using a second coding order that is different from the first coding order, the sizes of the smaller nodes being equal to or smaller than the threshold node size for coding order change;

reconstruct the octree structure based on the decoded occupancy codes for the nodes; and

reconstruct the point cloud based on the octree structure.

11. The apparatus of claim 10, wherein the processing circuitry is configured to:

decode a first set of occupancy codes for a first set of nodes of the smaller nodes in a first sub octree with a first node being a root of the first sub octree; and

decode a second set of occupancy codes for a second set of nodes of the smaller nodes in a second sub octree with a second node being a root of the second sub octree, the first node and the second node having a same node size.

12. The apparatus of claim 11, wherein the processing circuitry is configured to:

decode the first set of occupancy codes for the first set of nodes in the first sub octree in parallel with the second set of occupancy codes for the second set of nodes in the second sub octree.

13. The apparatus of claim 11, wherein the processing circuitry is configured to:

decode, using a first coding mode, the first set of occupancy codes for the first set of nodes in the first sub octree; and

decode, using a second coding mode, second set of occupancy codes for the second set of nodes in the second sub octree.

14. The apparatus of claim 13, wherein the processing circuitry is configured to:

decode, from the coded bitstream, a first index that is indicative of the first coding mode for the first sub octree; and

decode, from the coded bitstream, a second index that is indicative of the second coding mode for the second sub octree.

15. The apparatus of claim 10, wherein the first coding order is breadth first coding order and the second coding order is depth first coding order.

16. The apparatus of claim 10, wherein the first coding order is depth first coding order and the second coding order is breadth first coding order.

17. The apparatus of claim 10, wherein the processing circuitry is configured to:

determine the threshold node size for coding order change based on a signal in the coded bitstream for the point cloud.

18. A method for point cloud coding, comprising:

receiving point cloud data of a point cloud;

deriving an octree structure of the point cloud based on the point cloud data, nodes in the octree structure corresponding to three dimensional (3D) partitions of a space of the point cloud, sizes of the nodes being associated with partition depths in the octree structure;

generating a sequence of occupancy codes for the nodes, wherein a first portion of the occupancy codes for larger nodes in the nodes being arranged according to a

first coding order, the sizes of the larger nodes being larger than a threshold node size for coding order change, and a second portion and a third portion of the occupancy codes for different sets of nodes of smaller nodes in the nodes are arranged according to a second coding order that is different from the first coding order, the sizes of the smaller nodes being equal to or smaller than the threshold node size for coding order change;

encoding the sequence of occupancy codes into encoded data; and

generating a coded bitstream that includes the encoded data.

19. An apparatus for point cloud coding, comprising:

processing circuitry configured to:

receive point cloud data of a point cloud;

derive an octree structure of the point cloud based on the point cloud data, nodes in the octree structure corresponding to three dimensional (3D) partitions of a space of the point cloud, sizes of the nodes being associated with partition depths in the octree structure;

generate a sequence of occupancy codes for the nodes, wherein a first portion of the occupancy codes for larger nodes in the nodes being arranged according to a first coding order, the sizes of the larger nodes being larger than a threshold node size for coding order change, and a second portion and a third portion of the occupancy codes for different sets of nodes of smaller nodes in the nodes are arranged according to a second coding order that is different from the first coding order, the sizes of the smaller nodes being equal to or smaller than the threshold node size for coding order change;

encode the sequence of occupancy codes into encoded data; and

generate a coded bitstream that includes the encoded data.

20. A method for processing a video bitstream, wherein the video bitstream is decoded according to the method in any one of claims 1 to 9, or the video bitstream is generated according to the method in claim 19.