WHAT IS CLAIMED IS:

1. A method of transmitting point cloud data, the method comprising:

encoding the point cloud data in a data unit including geometry data and attribute data, wherein the geometry data represents positions of points of the point cloud data, and the attribute data includes at least one of colors or reflectance of the points,

wherein the encoding the point cloud data includes:

encoding the geometry data; and

encoding the attribute data based on a partial octree of the geometry data,

wherein the attribute data is encoded based on a weight related to an LOD, Level of Detail,

wherein the weight is derived based on a part of a number of the points in the data unit and a number of points in the LOD; and

transmitting a bitstream including the encoded point cloud data.

2. The method of claim 1,

wherein the encoding the attribute data includes:

generating one or more LODs by reorganizing the points;

performing lifting transform coding of the attribute data based on the one or more LODs; and

performing quantization processing for the attribute data based on the weight.

3. The method of claim 2,

wherein the weight is used to decode the encoded attribute data based on the partial octree.

4. The method of claim 3,

wherein the bitstream includes signaling information representing whether decoding based on the partial octree is enabled.

5. A device of transmitting point cloud data, the device comprising:
a memory; and
at least one processor connected to the memory, the at least one processor configured to:
encode the point cloud data in a data unit including geometry data and attribute data, wherein the geometry data represents positions of points of the point cloud data, the attribute data includes at least one of colors or reflectance of the points;
encode the geometry data;
encode the attribute data based on a partial octree of the geometry; and
transmit a bitstream including the encoded point cloud data,
wherein the attribute data is encoded based on a weight related to an LOD, Level of Detail,
wherein the weight is derived based on a part of a number of the points in the data unit and a number of points in the LOD.

6. The device of claim 5,
wherein the at least one processor is further configured to:
generate one or more LODs by reorganizing the points,
perform lifting transform coding of the attribute data based on the one or more LODs,

perform quantization processing for the attribute data.

7. A method of processing point cloud data, the method comprising:
receiving a bitstream including the point cloud data; and

decoding the point cloud data in a data unit,

wherein the decoding the point cloud data in the data unit includes:

decoding geometry data in the point cloud data, wherein the geometry data represents

positions of points of the point cloud data; and

decoding attribute data that includes at least one of colors or reflectance of the points, based on a partial octree of the geometry data,

wherein the attribute data is decoded based on a weight related to an LOD, Level of Detail, and

wherein the weight is derived based on a part of a number of the points in the data unit and a number of points in the LOD.

8. The method of claim 7,

wherein the bitstream includes signaling information, and

wherein the signaling information includes scalability information representing whether lifting transform decoding of the attribute data based on the partial octree is enabled.

9. The method of claim 8, wherein the decoding the attribute data includes:

generating one or more LODs by reorganizing the points;

performing lifting transform decoding of the attribute data based on the one or more LODs; and

performing inverse quantization processing for the attribute data.

10. The method of claim 9, wherein the weight is computed for each point in each LOD from 0^{th} LOD to the last LOD.

11. A device of processing point cloud data, the device comprising:

a memory; and

at least one processor connected to the memory, the at least one processor configured to:

receive a bitstream including the point cloud data; and

decode geometry data in a data unit in the point cloud data, wherein the geometry data represents positions of points of the point cloud data; and

decode attribute data in the data unit including at least one of colors or reflectance of the points based on a partial octree of the geometry data,

wherein the attribute data is decoded based on a weight related to an LOD, Level of Detail,

wherein the weight is derived based on a part of a number of the points in the data unit and a number of points in the LOD.

12. The device of claim 11,

wherein the bitstream includes signaling information, and

wherein the signaling information includes scalability information representing whether lifting transform decoding of the attribute data based on the partial octree is allowed, the weight is computed for each point in each LOD from 0^{th} LOD to the last LOD.

13. The device of claim 12, wherein the at least one processor is further configured to:

generate one or more LODs by reorganizing the points;

perform lifting transform decoding of the attribute data based on the one or more LODs; and

perform inverse quantization processing for the decoded attribute data.