

CLAIMS

1. A method of processing multi-layer video data, the method comprising: obtaining multi-layer video data comprising more than one operation point; storing the multi-layer video data in a file format, wherein the file format includes an operation points information (oinf) box which identifies the operation points included in the multi-layer video data; storing representation format information for each operation point of the multi-layer video data in the oinf box, wherein the representation format information comprises one or more of a spatial resolution, a bit depth, or a color format; and generating a file of video data formatted according to the file format.
2. The method of claim 1, further comprising: storing bitrate information for each operation point of the multi-layer video data in the oinf box of the file format; and not signaling a bit rate box after a configuration box of the file format.
3. The method of claim 1, further comprising: not storing profile, tier, and level (PTL) information, representation format information, and frame rate information in a decoder configuration record of the file format; and associating all information in the decoder configuration record with all layers of the multi-layer video data in a track.
4. The method of claim 1, further comprising: storing representation format information and frame rate information in a decoder configuration record for each layer of the multi-layer video data.
5. The method of claim 4, further comprising: storing parallelism information in the decoder configuration record for each layer of the multi-layer video data.
6. The method of claim 1, further comprising: not storing an operation point index in a decoder configuration record of the file format.
7. The method of claim 1, further comprising: storing a list of operation point indices associated with a track of the multi-layer video data in a decoder configuration record of the file format.

8. The method of claim 1, further comprising: storing a layer count in the oinf box of the file format, wherein the layer count indicates a number of necessary layers of an operation point of the multi-layer video data.

9. The method of claim 1, wherein the oinf box is included in a media information box.

10. The method of claim 9, wherein the oinf box is further included in sample group-description box, wherein the sample group-description box is included in a sample table box, and wherein the sample table box is included in the media information box.

11. The method of claim 1, wherein each operation point of the multi-layer video data comprises, respectively, a bitstream created from another bitstream by operation of a sub-bitstream extraction process with the another bitstream.

12. A video device for processing multi-layer video data, the device comprising: a data storage medium configured to store the multi-layer video data; and one or more processors configured to: obtain multi-layer video data comprising more than one operation point; store the multi-layer video data in a file format, wherein the file format includes an operation points information (oinf) box which identifies the operation points included in the multi-layer video data; store representation format information for each operation point of the multi-layer video data in the oinf box, wherein the representation format information comprises one or more of a spatial resolution, a bit depth, or a color format; and generate a file of video data formatted according to the file format.

13. The device of claim 12, wherein the one or more processors are further configured to: store bitrate information for each operation point of the multi-layer video data in the oinf box of the file format; and not signal a bit rate box after a configuration box of the file format.

14. The device of claim 12, wherein the one or more processors are further configured to: not store profile, tier, and level (PTL) information, representation format information, and frame rate information in a decoder configuration record of the file format; and associate all information in

the decoder configuration record with all layers of the multi-layer video data in a track.

15. The device of claim 12, wherein the one or more processors are further configured to: store representation format information and frame rate information in a decoder configuration record for each layer of the multi-layer video data.

16. The device of claim 15, wherein the one or more processors are further configured to: store parallelism information in the decoder configuration record for each layer of the multi-layer video data.

17. The device of claim 12, wherein the one or more processors are further configured to: not store an operation point index in a decoder configuration record of the file format.

18. The device of claim 12, wherein the one or more processors are further configured to: store a list of operation point indices associated with a track of the multi-layer video data in a decoder configuration record of the file format.

19. The device of claim 12, wherein the one or more processors are further configured to: store a layer count in the oinf box of the file format, wherein the layer count indicates a number of necessary layers of an operation point of the multi-layer video data.

20. The device of claim 12, wherein the oinf box is included in a media information box.

21. The device of claim 20, wherein the oinf box is further included in sample group-description box, wherein the sample group-description box is included in a sample table box, and wherein the sample table box is included in the media information box.

22. The device of claim 12, wherein each operation point of the multi-layer video data comprises, respectively, a bitstream created from another bitstream by operation of a sub-bitstream extraction process with the another bitstream.

23. A video device for processing multi-layer video data, the device comprising: means for obtaining multi-layer video data comprising more than one operation point; means for storing the multi-layer video data in a file format, wherein the file format includes an operation points information (oinf) box which identifies the operation points included in the multi-layer video data; means for storing representation format information for each operation point of the multi-layer video data in the oinf box, wherein the representation format information comprises one or more of a spatial resolution, a bit depth, or a color format; and means for generating a file of video data formatted according to the file format.

24. The device of claim 23, wherein the oinf box is included in a media information box.

25. The device of claim 24, wherein the oinf box is further included in sample group-description box, wherein the sample group-description box is included in a sample table box, and wherein the sample table box is included in the media information box.

26. A non-transitory computer-readable storage medium storing instructions that when executed cause one or more processors to: obtain multi-layer video data comprising more than one operation point; store the multi-layer video data in a file format, wherein the file format includes an operation points information (oinf) box which identifies the operation points included in the multi-layer video data; store representation format information for each operation point of the multi-layer video data in the oinf box, wherein the representation format information comprises one or more of a spatial resolution, a bit depth, or a color format; and generate a file of video data formatted according to the file format.

27. The non-transitory computer-readable storage medium of claim 26, wherein the oinf box is included in a media information box.

28. The non-transitory computer-readable storage medium of claim 27, wherein the oinf box is further included in sample group-description box, wherein the sample group-description box is included in a sample table box, and wherein the sample table box is included in the media information box.

29. A method of processing multi-layer video data, the method comprising: obtaining multi-layer video data comprising more than one operating point; storing the multi-layer video data in a file format, wherein the file format includes an operating points information (oinf) sample group which identifies the operating points included in the multi-layer video data; storing representation format information for each operating point of the multi-layer video data in the oinf sample group, wherein the representation format information comprises one or more of a spatial resolution, a bit depth, or a color format; and generating a file of video data formatted according to the file format.

30. The method of claim 29, further comprising: storing bitrate information for each operating point of the multi-layer video data in the oinf sample group of the file format; and not signaling a bit rate sample group after a configuration sample group of the file format.

31. The method of claim 29, further comprising: not storing profile, tier, and level (PTL) information, representation format information, and frame rate information in a decoder configuration record of the file format; and associating all information in the decoder configuration record with all layers of the multi-layer video data in a track.

32. The method of claim 29, further comprising: storing representation format information and frame rate information in a decoder configuration record for each layer of the multi-layer video data.

33. The method of claim 32, further comprising: storing parallelism information in the decoder configuration record for each layer of the multi-layer video data.

34. The method of claim 29, further comprising: not storing an operating point index in a decoder configuration record of the file format.

35. The method of claim 29, further comprising: storing a list of operating point indices associated with a track of the multi-layer video data in a decoder configuration record of the file format.

36. The method of claim 29, further comprising: storing a layer count in the oinf sample group of the file format, wherein the layer count indicates a number of necessary layers of an operating point of the multi-layer video data.

37. The method of claim 29, wherein the oinf sample group is included in a media information sample group.

38. The method of claim 37, wherein the oinf sample group is further included in sample group-description sample group, wherein the sample group description sample group is included in a sample table sample group, and wherein the sample table sample group is included in the media information sample group.

39. The method of claim 29, wherein each operating point of the multi-layer video data comprises, respectively, a bitstream created from another bitstream by operating of a sub-bitstream extraction process with the another bitstream.

40. A video device for processing multi-layer video data, the device comprising: a data storage medium configured to store the multi-layer video data; and one or more processors configured to: obtain multi-layer video data comprising more than one operating point; store the multi-layer video data in a file format, wherein the file format includes an operating points information (oinf) sample group which identifies the operating points included in the multi-layer video data; store representation format information for each operating point of the multi-layer video data in the oinf sample group, wherein the representation format information comprises one or more of a spatial resolution, a bit depth, or a color format; and generate a file of video data formatted according to the file format.

41. The device of claim 40, wherein the one or more processors are further configured to: store bitrate information for each operating point of the multi-layer video data in the oinf sample group of the file format; and not signal a bit rate sample group after a configuration sample group of the file format.

42. The device of claim 40, wherein the one or more processors are further configured to: not store profile, tier, and level (PTL) information, representation format information, and frame rate information in a decoder configuration record of the file format; and associate all information in the decoder configuration record with all layers of the multi-layer video data in a track.

43. The device of claim 40, wherein the one or more processors are further configured to: store representation format information and frame rate information in a decoder configuration record for each layer of the multi-layer video data.

44. The device of claim 43, wherein the one or more processors are further configured to: store parallelism information in the decoder configuration record for each layer of the multi-layer video data.

45. The device of claim 40, wherein the one or more processors are further configured to: not store an operating point index in a decoder configuration record of the file format.

46. The device of claim 40, wherein the one or more processors are further configured to: store a list of operating point indices associated with a track of the multi-layer video data in a decoder configuration record of the file format.

47. The device of claim 40, wherein the one or more processors are further configured to: store a layer count in the oinf sample group of the file format, wherein the layer count indicates a number of necessary layers of an operating point of the multi-layer video data.

48. The device of claim 40, wherein the oinf sample group is included in a media information sample group.

49. The device of claim 48, wherein the oinf sample group is further included in sample group-description sample group, wherein the sample group-description sample group is included in a sample table sample group, and wherein the sample table sample group is included in the media

information sample group.

50. The device of claim 40, wherein each operating point of the multi-layer video data comprises, respectively, a bitstream created from another bitstream by operating of a sub-bitstream extraction process with the another bitstream.

51. A video device for processing multi-layer video data, the device comprising: means for obtaining multi-layer video data comprising more than one operating point; means for storing the multi-layer video data in a file format, wherein the file format includes an operating points information (oinf) sample group which identifies the operating points included in the multi-layer video data; means for storing representation format information for each operating point of the multi-layer video data in the oinf sample group, wherein the representation format information comprises one or more of a spatial resolution, a bit depth, or a color format; and means for generating a file of video data formatted according to the file format.

52. The device of claim 51, wherein the oinf sample group is included in a media information sample group.

53. The device of claim 52, wherein the oinf sample group is further included in sample group-description sample group, wherein the sample group-description sample group is included in a sample table sample group, and wherein the sample table sample group is included in the media information sample group.

54. A non-transitory computer-readable storage medium storing instructions that when executed cause one or more processors to: obtain multi-layer video data comprising more than one operating point; store the multi-layer video data in a file format, wherein the file format includes an operating points information (oinf) sample group which identifies the operating points included in the multi-layer video data; store representation format information for each operating point of the multi-layer video data in the oinf sample group, wherein the representation format information comprises one or more of a spatial resolution, a bit depth, or a color format; and generate a file of video data formatted according to the file format.

55. The non-transitory computer-readable storage medium of claim 54, wherein the oinf sample group is included in a media information sample group.

56. The non-transitory computer-readable storage medium of claim 55, wherein the oinf sample group is further included in sample group-description sample group, wherein the sample group-description sample group is included in a sample table sample group, and wherein the sample table sample group is included in the media information sample group.