Amended Set of Claims

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

decoding, from an encoded video bitstream, a video parameter set (VPS) that includes a plurality of hypothetical reference decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters, wherein the common set of HRD parameters is common to all sub-layers of the encoded video bitstream; and

performing an operation using the HRD parameters of at least one of the HRD parameter syntax structures.

2. The method of claim 1, further comprising:

determining that a particular HRD parameter syntax structure does not include a common set of HRD parameters, and

wherein performing the operation using the HRD parameters of at least one of the HRD parameter syntax structures comprises, when the particular HRD parameter syntax structure does not include the common set of HRD parameters, performing the operation using a common set of HRD parameters associated with a previous HRD parameter syntax structure and additional HRD parameters of the particular HRD parameter syntax structure.

3. The method of claim 1, wherein the first HRD parameter syntax structure signaled in the VPS includes a first common set of HRD parameters.

4. The method of claim 3, wherein a subsequent HRD parameter syntax structure signaled in the VPS includes a second, different common set of HRD parameters.

5. The method of claim 3, wherein at least one HRD parameter syntax structure signaled in the VPS does not include a common set of HRD parameters.

6. The method of claim 1, wherein each of the HRD parameter syntax structures is applicable to an operation point of the encoded video bitstream.

7. The method of claim 1, wherein at least one of the HRD parameter syntax structures is applicable to multiple operation points of the encoded video bitstream.

8. A video decoding device comprising one or more processors configured to:

decode, from an encoded video bitstream, a video parameter set (VPS) that includes a plurality of hypothetical reference decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters, wherein the common set of HRD parameters is common to all sub-layers of the encoded video bitstream; and

perform an operation using the HRD parameters of at least one of the HRD parameter syntax structures.

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

determine that a particular HRD parameter syntax structure does not include a common set of HRD parameters, and

when the particular HRD parameter syntax structure does not include the common set of HRD parameters, perform the operation using a common set of HRD parameters associated with a previous HRD parameter syntax structure and additional HRD parameters of the particular HRD parameter syntax structure.

10. The video decoding device of claim 8, wherein the first HRD parameter syntax structure signaled in the VPS includes a first common set of HRD parameters.

11. The video decoding device of claim 10, wherein a subsequent HRD parameter syntax structure signaled in the VPS includes a second, different common set of HRD parameters.

12. The video decoding device of claim 10, wherein at least one HRD parameter syntax structure signaled in the VPS does not include a common set of HRD parameters.

13. The video decoding device of claim 8, wherein each of the HRD parameter syntax structures is applicable to an operation point of the encoded video bitstream.

14. The video decoding device of claim 8, wherein at least one of the HRD parameter syntax structures is applicable to multiple operation points of the encoded video bitstream.

15. A video decoding device comprising:

means for decoding, from an encoded video bitstream, a video parameter set (VPS) that includes a plurality of hypothetical reference decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters, wherein the common set of HRD parameters is common to all sub-layers of the encoded video bitstream; and

means for performing an operation using the HRD parameters of at least one of the HRD parameter syntax structures.

16. The video decoding device of claim 15, wherein:

the first HRD parameter syntax structure signaled in the VPS includes a first common set of HRD parameters,

a subsequent HRD parameter syntax structure signaled in the VPS includes a second, different common set of HRD parameters, and

each of the HRD parameter syntax structures is applicable to an operation point of the encoded video bitstream.

17. A computer-readable storage medium that stores instructions that, when executed by a video decoding device, configure the video decoding device to:

decode, from an encoded video bitstream, a video parameter set (VPS) that includes a plurality of hypothetical reference decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters, wherein the common set of HRD parameters is common to all sub-layers of the encoded video bitstream; and

perform an operation using the HRD parameters of at least one of the HRD parameter syntax structures.

18. The computer-readable storage medium of claim 17, wherein:

the first HRD parameter syntax structure signaled in the VPS includes a first common set of HRD parameters,

a subsequent HRD parameter syntax structure signaled in the VPS includes a second, different common set of HRD parameters, and

each of the HRD parameter syntax structures is applicable to an operation point of the encoded video bitstream.

19. A method of encoding video data, the method comprising:

generating a video parameter set (VPS) that includes a plurality of Hypothetical Reference Decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters in addition to a set of sub-layer-specific HRD parameter information specific to a particular sub-layer of an encoded video bitstream, wherein the common set of HRD parameters is common to all sub-layers of the encoded video bitstream; and

signaling the VPS in the encoded video bitstream.

20. The method of claim 19, wherein the first HRD parameter syntax structure signaled in the VPS includes a first common set of HRD parameters.

21. The method of claim 20, wherein a subsequent HRD parameter syntax structure signaled in the VPS includes a second, different common set of HRD parameters.

22. The method of claim 20, wherein at least one HRD parameter syntax structure signaled in the VPS does not include a common set of HRD parameters.

23. A video encoding device comprising one or more processors configured to:

generate a video parameter set (VPS) that includes a plurality of Hypothetical Reference Decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters in addition to a set of sub-layer-specific HRD parameter information specific to a particular sub-layer of an encoded video bitstream, wherein the common set of HRD parameters is common to all sub-layers of the encoded video bitstream; and

signal the VPS in the encoded video bitstream.

24. The video encoding device of claim 23, wherein the first HRD parameter syntax structure signaled in the VPS includes a first common set of HRD parameters.

25. The video encoding device of claim 24, wherein a subsequent HRD parameter syntax structure signaled in the VPS includes a second, different common set of HRD parameters.

26. The video encoding device of claim 24, wherein at least one HRD parameter syntax structure signaled in the VPS does not include a common set of HRD parameters.

27. A video encoding device comprising:

means for generating, a video parameter set (VPS) that includes a plurality of Hypothetical Reference Decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters in addition to a set of sub-layer-specific HRD parameter information specific to a particular sub-layer of an encoded video bitstream, wherein the common set of HRD parameters is common to all sub-layers of the encoded video bitstream; and

means for signaling the VPS in the encoded video bitstream.

28. The video encoding device of claim 27, wherein:

the first HRD parameter syntax structure signaled in the VPS includes a first common set of HRD parameters,

a subsequent HRD parameter syntax structure signaled in the VPS includes a second, different common set of HRD parameters, and

each of the HRD parameter syntax structures is applicable to an operation point of the encoded video bitstream.

29. A computer-readable storage medium that stores instructions that, when executed by a video encoding device, configure the video encoding device to:

generate a video parameter set (VPS) that includes a plurality of Hypothetical Reference Decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters in addition to a set of sub-layer-specific HRD parameter information specific to a particular sub-layer of the encoded video bitstream, wherein the common set of HRD parameters is common to all sub-layers of the encoded video bitstream; and

signal the VPS in the encoded video bitstream.

30. The computer-readable storage medium of claim 29, wherein:

the first HRD parameter syntax structure signaled in the VPS includes a first common set of HRD parameters,

a subsequent HRD parameter syntax structure signaled in the VPS includes a second, different common set of HRD parameters, and

each of the HRD parameter syntax structures is applicable to an operation point of the encoded video bitstream.

CLAIMS

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

decoding, from an encoded video bitstream, a video parameter set (VPS) that includes a plurality of hypothetical reference decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures other than the first HRD parameter syntax structure included in the VPS, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters, wherein the common set of HRD parameters is common to all sub-layers of the encoded video bitstream, and wherein the first HRD parameter syntax structure included in the VPS includes the common set of HRD parameters; and

performing an operation using the HRD parameters of at least one of the HRD parameter syntax structures.

2. The method of claim 1, further comprising:

determining that a particular HRD parameter syntax structure in the plurality of HRD parameter syntax structures does not include the common set of HRD parameters, and

wherein performing the operation using the HRD parameters of at least one of the HRD parameter syntax structures comprises performing the operation using the common set of HRD parameters included in a previous HRD parameter syntax structure in the plurality of HRD parameter syntax structures and additional HRD parameters of the particular HRD parameter syntax structure.

3. The method of claim **1**, wherein a subsequent HRD parameter syntax structure included in the VPS includes the common set of HRD parameters, wherein the common set of HRD parameters included in the subsequent HRD parameter syntax structure is different from the common set of HRD parameters included in the first HRD parameter syntax structure included in the VPS.

4. The method of claim **1**, wherein at least one of the HRD parameter syntax structures included in the VPS does not include the common set of HRD parameters.

5. The method of claim **1**, wherein each of the HRD parameter syntax structures is applicable to an operation point of the encoded video bitstream.

6. The method of claim **1**, wherein at least one of the HRD parameter syntax structures is applicable to multiple operation points of the encoded video bitstream.

7. A video decoding device comprising:

a memory configured to store data, the data including an encoded video bitstream; and

one or more processors configured to:

decode, from the encoded video bitstream, a video parameter set (VPS) that includes a plurality of hypothetical reference decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures other than the first HRD parameter syntax structure included in the VPS, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters, wherein the common set of HRD parameters is common to all sub-layers of the encoded video bitstream, wherein the first HRD parameter syntax

structure included in the VPS includes the common set of HRD parameters; and

perform an operation using the HRD parameters of at least one of the HRD parameter syntax structures.

8. The video decoding device of claim **7**, wherein the one or more processors are further configured to:

determine that a particular HRD parameter syntax structure in the plurality of HRD parameter syntax structures does not include the common set of HRD parameters, and

perform the operation using the common set of HRD parameters included in a previous HRD parameter syntax structure in the plurality of HRD parameter syntax structures and additional HRD parameters of the particular HRD parameter syntax structure.

9. The video decoding device of claim **7**, wherein a subsequent HRD parameter syntax structure included in the VPS includes the common set of HRD parameters, wherein the common set of HRD parameters included in the subsequent HRD parameter syntax structure is different from the common set of HRD parameters included in the first HRD parameter syntax structure included in the VPS.

10. The video decoding device of claim **7**, wherein at least one of the HRD parameter syntax structures included in the VPS does not include the common set of HRD parameters.

11. The video decoding device of claim **7**, wherein each of the HRD parameter syntax structures is applicable to an operation point of the encoded video bitstream.

12. The video decoding device of claim **7**, wherein at least one of the HRD parameter syntax structures is applicable to multiple operation points of the encoded video bitstream.

13. A video decoding device comprising:

means for decoding, from an encoded video bitstream, a video parameter set (VPS) that includes a plurality of

hypothetical reference decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures other than the first HRD parameter syntax structure included in the VPS, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters, wherein the common set of HRD parameters is common to all sub-layers of the encoded video bitstream, and wherein the first HRD parameter syntax structure included in the VPS includes the common set of HRD parameters; and

means for performing an operation using the HRD parameters of at least one of the HRD parameter syntax structures.

14. The video decoding device of claim **13**, wherein:

a subsequent HRD parameter syntax structure included in the VPS includes the common set of HRD parameters, wherein the common set of HRD parameters included in the subsequent HRD parameter syntax structure is different from the common set of HRD parameters included in the first HRD parameter syntax structure included in the VPS, and

each of the HRD parameter syntax structures is applicable to an operation point of the encoded video bitstream.

15. A non-transitory computer-readable storage medium that stores instructions that, when executed by a video decoding device, configure the video decoding device to:

decode, from an encoded video bitstream, a video parameter set (VPS) that includes a plurality of hypothetical reference decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each

respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures other than the first HRD parameter syntax structure included in the VPS, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters, wherein the common set of HRD parameters is common to all sub-layers of the encoded video bitstream, and wherein the first HRD parameter syntax structure included in the VPS includes the common set of HRD parameters; and

perform an operation using the HRD parameters of at least one of the HRD parameter syntax structures.

16. The non-transitory computer-readable storage medium of claim **15**, wherein:

a subsequent HRD parameter syntax structure included in the VPS includes the common set of HRD parameters, wherein the common set of HRD parameters included in the subsequent HRD parameter syntax structure is different from the common set of HRD parameters included in the first HRD parameter syntax structure included in the VPS, and

each of the HRD parameter syntax structures is applicable to an operation point of the encoded video bitstream.

17. A method of encoding video data, the method comprising:

generating a video parameter set (VPS) that includes a plurality of Hypothetical Reference Decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures other than the first HRD parameter syntax structure included in the VPS, the VPS further includes a syntax element indicating whether the HRD param-

eters of the respective HRD parameter syntax structure include a common set of HRD parameters, wherein the common set of HRD parameters is common to all sub-layers of an encoded video bitstream comprising encoded pictures of the video data, and wherein the first HRD parameter syntax structure included in the VPS includes the common set of HRD parameters; and

signaling the VPS in the encoded video bitstream.

18. The method of claim **17**, wherein a subsequent HRD parameter syntax structure included in the VPS includes the common set of HRD parameters, wherein the common set of HRD parameters included in the subsequent HRD parameter syntax structure is different from the common set of HRD parameters included in the first HRD parameter syntax structure included in the VPS.

19. The method of claim **17**, wherein at least one of the HRD parameter syntax structures included in the VPS does not include the common set of HRD parameters.

20. A video encoding device comprising:

a data storage medium configured to store video data; and

one or more processors configured to:

generate a video parameter set (VPS) that includes a plurality of Hypothetical Reference Decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures other than the first HRD parameter syntax structure included in the VPS, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters, wherein the common set of HRD parameters is common to all sub-layers of an encoded video

bitstream that comprises encoded pictures of the video data, and wherein the first HRD parameter syntax structure included in the VPS includes the common set of HRD parameters; and

signal the VPS in the encoded video bitstream.

21. The video encoding device of claim **20**, wherein a subsequent HRD parameter syntax structure included in the VPS includes the common set of HRD parameters, wherein the common set of HRD parameters included in the subsequent HRD parameter syntax structure is different from the common set of HRD parameters included in the first HRD parameter syntax structure included in the VPS.

22. The video encoding device of claim **20**, wherein at least one of the HRD parameter syntax structures included in the VPS does not include the common set of HRD parameters.

23. A video encoding device comprising:

means for generating a video parameter set (VPS) that includes a plurality of Hypothetical Reference Decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures other than the first HRD parameter syntax structure included in the VPS, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters, wherein the common set of HRD parameters is common to all sub-layers of an encoded video bitstream that comprises encoded pictures of video data, and wherein the first HRD parameter syntax structure included in the VPS includes the common set of HRD parameters; and

means for signaling the VPS in the encoded video bitstream.

24. The video encoding device of claim **23**, wherein:

a subsequent HRD parameter syntax structure included in the VPS includes the common set of HRD parameters, wherein the common set of HRD parameters included in the subsequent HRD parameter syntax structure is different from the common set of HRD parameters included in the first HRD parameter syntax structure included in the VPS, and

each of the HRD parameter syntax structures is applicable to an operation point of the encoded video bitstream.

25. A non-transitory computer-readable storage medium that stores instructions that, when executed by a video encoding device, configure the video encoding device to:

generate a video parameter set (VPS) that includes a plurality of Hypothetical Reference Decoder (HRD) parameter syntax structures that each include HRD parameters, wherein for each respective HRD parameter syntax structure in the plurality of HRD parameter syntax structures other than the first HRD parameter syntax structure included in the VPS, the VPS further includes a syntax element indicating whether the HRD parameters of the respective HRD parameter syntax structure include a common set of HRD parameters, wherein the common set of HRD parameters is common to all sublayers of an encoded video bitstream that comprises encoded pictures of video data, and wherein the first HRD parameter syntax structure included in the VPS includes the common set of HRD parameters; and

signal the VPS in the encoded video bitstream.

26. The non-transitory computer-readable storage medium of claim **25**, wherein:

a subsequent HRD parameter syntax structure included in the VPS includes the common set of HRD parameters,

wherein the common set of HRD parameters included in the subsequent HRD parameter syntax structure is different from the common set of HRD parameters included in the first HRD parameter syntax structure included in the VPS, and

each of the HRD parameter syntax structures is applicable to an operation point of the encoded video bitstream.

27. The video decoding device of claim **7**, wherein the video decoding device comprises at least one of:

an integrated circuit;

a microprocessor; or

a wireless communication device.

28. The video encoding device of claim **20**, wherein the video encoding device comprises at least one of:

an integrated circuit;

a microprocessor; or

a wireless communication device.

29. The video decoding device of claim **7**, further comprising a display configured to display the decoded video data.

30. The video encoding device of claim **20**, further comprising a camera configured to capture the video data.

31. The method of claim **1**, wherein each of the HRD parameter syntax structures always includes a set of sub-layer-specific HRD parameter information specific to a particular sub-layer of the encoded video bitstream.

32. The video decoding device of claim **7**, wherein each of the HRD parameter syntax structures always includes a set of sub-layer-specific HRD parameter information specific to a particular sub-layer of the encoded video bitstream.

33. The method of claim **17**, wherein each of the HRD parameter syntax structures always includes a set of sub-layer-specific HRD parameter information specific to a particular sub-layer of the encoded video bitstream.

34. The video encoding device of claim **20**, wherein each of the HRD parameter syntax structures always includes a set of sub-layer-specific HRD parameter information specific to a particular sub-layer of the encoded video bitstream.

35. The video encoding device of claim **25**, wherein each of the HRD parameter syntax structures always includes a set of sub-layer-specific HRD parameter information specific to a particular sub-layer of the encoded video bitstream.

36. The non-transitory computer-readable storage medium of claim **25**, wherein each of the HRD parameter syntax structures always includes a set of sub-layer-specific HRD parameter information specific to a particular sub-layer of the encoded video bitstream.