Amended Set of Claims

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

obtaining, from a bitstream that includes encoded video data, a slice header of a current slice of a current picture, wherein:

a set of one or more long-term reference picture (LTRP) entries is signaled in the slice header,

each respective LTRP entry of the one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture;

generating, based at least in part on the one or more LTRP entries, a reference picture list for the current picture; and

reconstructing, based at least in part on one or more reference pictures in the reference picture list for the current picture, the current picture.

2. The method of claim 1, wherein:

the method further comprises obtaining, from the bitstream, a sequence parameter set (SPS) that is applicable to the current picture, the SPS including a particular one of the one or more LTRP entries that refers to a particular reference picture; and

the slice header includes an index to the particular LTRP entry.

3. The method of claim 2, wherein the particular LTRP entry is a first LTRP entry and the slice header includes a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

4. The method of claim 2, wherein:

the particular LTRP entry is a first LTRP entry,

the SPS includes the first LTRP entry and a second LTRP entry; and

the slice header includes an index to the second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

5. The method of claim 2, wherein the SPS is in compliance with a restriction that prohibits the SPS from including two or more copies of the same LTRP entry.

6. The method of claim 2, wherein the slice header is in compliance with a restriction that prohibits the slice header from including two indexes to a single LTRP entry in the SPS.

7. The method of claim 2, wherein, for each respective LTRP entry in the SPS, the slice header does not include an LTRP entry matching the respective LTRP entry in the SPS.

8. The method of claim 2, wherein the particular LTRP entry is a first LTRP entry and the slice header is in compliance with a restriction that prohibits the slice header from including a second LTRP entry if the slice header includes an index to an equivalent LTRP entry in the SPS, wherein the second LTRP entry includes a least-significant bits (LSB) syntax element and a usage syntax element, and the equivalent LTRP entry includes a LSB syntax element that matches the LSB syntax element of the second LTRP entry and the equivalent LTRP entry includes a usage syntax element that matches the usage syntax element of the second reference picture, wherein the LSB syntax element of the second LTRP entry and the LSB syntax element of the equivalent LTRP entry indicate LSBs of picture order count (POC) values, and wherein the usage syntax element of the second LTRP entry and the usage syntax element of the equivalent LTRP entry indicate whether reference pictures are used for reference by the current picture.

9. The method of claim 1, wherein the slice header includes a first LTRP entry indicating that a particular reference picture is in a long term reference picture set of the current picture and includes a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in the long-term reference picture set of the current picture.

10. The method of claim 1, wherein the slice header is in compliance with a restriction that prohibits the slice header from including two LTRP entries that indicate reference pictures having the same POC value.

11. The method of claim 1, wherein a long-term reference picture set of the current picture includes a first subset and a second subset, the first subset including LTRPs used for reference by the current picture, the second subset including LTRPs used for reference by other pictures.

12. The method of claim 11, wherein the slice header is in compliance with a restriction that prohibits the first subset from including two reference pictures with the same POC value, a restriction that prohibits the second subset from including two reference pictures with the same POC value, and a restriction that prohibits the first and second subsets from including reference pictures with the same POC value.

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

a data storage medium storing video data;

obtain, from a bitstream, a slice header of a current slice of a current picture of the video data, wherein:

a set of one or more long-term reference picture (LTRP) entries is signaled in the slice header,

each respective LTRP entry of the one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture;

generate, based at least in part on the one or more LTRP entries, a reference picture list for the current picture; and

reconstruct, based at least in part on one or more reference pictures in the reference picture list for the current picture, the current picture.

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

the one or more processors are further configured to obtain, from the bitstream, a sequence parameter set (SPS) that is applicable to the current picture, the SPS including a particular one of the one or more LTRP entries that refers to a particular reference picture; and

the slice header includes an index to the particular LTRP entry.

15. The video decoding device of claim 14, wherein the particular LTRP entry is a first LTRP entry and the slice header includes a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

16. The video decoding device of claim 14, wherein:

the particular LTRP entry is a first LTRP entry,

the SPS includes the first LTRP entry and a second LTRP entry; and

the slice header includes an index to the second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

17. The video decoding device of claim 14, wherein the SPS is in compliance with a restriction that prohibits the SPS from including two or more copies of the same LTRP entry.

18. The video decoding device of claim 14, wherein the slice header is in compliance with a restriction that prohibits the slice header from including two indexes to a single LTRP entry in the SPS.

19. The video decoding device of claim 14, wherein, for each respective LTRP entry in the SPS, the slice header does not include an LTRP entry matching the respective LTRP entry in the SPS.

20. The video decoding device of claim 14, wherein the particular LTRP entry is a first LTRP entry and the slice header is in compliance with a restriction that prohibits the slice header from including a second LTRP entry if the slice header includes an index to an equivalent LTRP entry in the SPS, wherein the second LTRP entry includes a least-significant bits (LSB) syntax element and a usage syntax element, and the equivalent LTRP entry includes a LSB syntax element that matches the LSB syntax element of the second LTRP entry and the equivalent LTRP entry includes a usage syntax element that matches the usage syntax element of the particular reference picture, wherein the LSB syntax element of the second LTRP entry and the LSB syntax element of the equivalent LTRP entry indicate LSBs of picture order count (POC) values, wherein the usage syntax element of the second LTRP entry and the usage syntax element of the equivalent LTRP entry indicate whether reference pictures are used for reference by the current picture.

21. The video decoding device of claim 13, wherein the slice header includes a first LTRP entry indicating that a particular reference picture is in a long term reference picture set of the current picture and includes a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in the long-term reference picture set of the current picture.

22. The video decoding device of claim 13, wherein the slice header is in compliance with a restriction that prohibits the slice header from including two LTRP entries that indicate reference pictures having the same POC value.

23. The video decoding device of claim 13, wherein a long-term reference picture set of the current picture includes a first subset and a second subset, the first subset including LTRPs used for reference by the current picture, the second subset including LTRPs used for reference by other pictures.

24. The video decoding device of claim 23, wherein the slice header is in compliance with a restriction that prohibits the first subset from including two reference pictures with the same POC value, a restriction that prohibits the second subset from including two reference pictures with the same POC value, and a restriction that prohibits the first and second subsets from including reference pictures with the same POC value.

25. A video decoding device comprising:

means for storing video data;

means for obtaining, from a bitstream that includes the video data, a slice header of a current slice of a current picture, wherein:

a set of one or more long-term reference picture (LTRP) entries is signaled in the slice header,

each respective LTRP entry of the one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture;

means for generating, based at least in part on the one or more LTRP entries, a reference picture list for the current picture; and

means for reconstructing, based at least in part on one or more reference pictures in the reference picture list for the current picture, the current picture.

26. A computer-readable storage medium having instructions stored thereon that, when executed by a video decoding device, configure the video decoding device to:

obtain, from a bitstream, a slice header of a current slice of a current picture, wherein:

a set of one or more long-term reference picture (LTRP) entries is signaled in the slice header,

each respective LTRP entry of the one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture;

generate, based at least in part on the one or more LTRP entries, a reference picture list for the current picture; and

reconstruct, based at least in part on one or more reference pictures in the reference picture list for the current picture, the current picture.

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

signaling, in a slice header for a current slice of a current picture of the video data, a set of one or more long-term reference picture (LTRP) entries, wherein:

each respective LTRP entry of the one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture.

28. The method of claim 27, wherein:

the method further comprises generating a sequence parameter set (SPS) that is applicable to the current picture, the SPS including a particular one of the one or more LTRP entries that refers to a particular reference picture; and

signaling the first LTRP entry comprises including, in the slice header, an index to the particular LTRP entry.

29. The method of claim 28, wherein the particular LTRP entry is a first LTRP entry and the slice header includes a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

30. The method of claim 28, wherein:

the particular LTRP entry is a first LTRP entry,

the SPS includes the first LTRP entry and a second LTRP entry; and

signaling the second LTRP entry comprises including, in the slice header, an index to the second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

31. The method of claim 28, wherein generating the SPS comprises generating the SPS such that the SPS includes the particular LTRP entry only if the SPS does not already include a copy of the particular LTRP entry.

32. The method of claim 28, wherein generating the SPS comprises generating the SPS such that the SPS is in compliance with a restriction that prohibits the SPS from including two or more copies of the same LTRP entry.

33. The method of claim 28, wherein, for each respective LTRP entry in the SPS, the slice header includes an index to the respective LTRP entry only if the slice header does not already include a copy of the index to the respective LTRP entry.

34. The method of claim 28, wherein the slice header is in compliance with a restriction that prohibits the slice header from including two indexes to a single LTRP entry in the SPS.

35. The method of claim 28, wherein, for each respective LTRP entry in the SPS, the slice header does not include an LTRP entry matching the respective LTRP entry in the SPS.

36. The method of claim 28, wherein the particular LTRP entry is a first LTRP entry and the slice header is in compliance with a restriction that prohibits the slice header from including a second LTRP entry if the slice header includes an index to an equivalent LTRP entry in the SPS, wherein the second LTRP entry includes a least-significant-bits (LSB) syntax element and a usage syntax element, and the equivalent LTRP entry includes a LSB syntax element that matches the LSB syntax element of the second LTRP entry and the equivalent LTRP entry includes a usage syntax element that matches the usage syntax element of the particular reference picture, wherein the LSB syntax element of the second LTRP entry and the LSB syntax element of the equivalent LTRP entry indicate LSBs of picture order count (POC) values, and wherein the usage syntax element of the second LTRP entry and the usage syntax element of the equivalent LTRP entry indicate whether reference pictures are used for reference by the current picture.

37. The method of claim 27, wherein:

signaling the first LTRP entry comprises including, in the slice header, a first LTRP entry indicating that a particular reference picture is in a long term reference picture set of the current picture; and

signaling the second LTRP entry comprises including, in the slice header, a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in the long-term reference picture set of the current picture.

38. The method of claim 27, wherein generating the slice header comprises generating the slice header such that the slice header is in compliance with a restriction that prohibits the slice header from including two LTRP entries that indicate reference pictures having the same POC value.

39. The method of claim 27, wherein a long-term reference picture set of the current picture includes a first subset and a second subset, the first subset including LTRPs used for reference by the current picture, the second subset including LTRPs used for reference by other pictures.

40. The method of claim 39, wherein the slice header is in compliance with a restriction that prohibits the first subset from including two reference pictures with the same POC value, a restriction that prohibits the second subset from including two reference pictures with the same POC value, and a restriction that prohibits the first and second subsets from including reference pictures with the same POC value.

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

a data storage medium storing video data;

signal, in a slice header for a current slice of a current picture of the video data, a set of one or more long-term reference picture (LTRP) entries, wherein:

each respective LTRP entry of the one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture.

42. The video encoding device of claim 41, wherein the one or more processors are configured to:

generate a sequence parameter set (SPS) that is applicable to the current picture, the SPS including a particular one of the one or more LTRP entries that refers to a particular reference picture; and

include, in the slice header, an index to the particular LTRP entry.

43. The video encoding device of claim 42, wherein the particular LTRP entry is a first LTRP entry and the slice header includes a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

44. The video encoding device of claim 42, wherein:

the particular LTRP entry is a first LTRP entry,

the SPS includes the first LTRP entry and a second LTRP entry; and

the one or more processors are configured to include, in the slice header, an index to the second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

45. The video encoding device of claim 42, wherein the one or more processors are configured to generate the SPS such that the SPS includes the particular LTRP entry only if the SPS does not already include a copy of the particular LTRP entry.

46. The video encoding device of claim 42, wherein the one or more processors are configured to generate the SPS such that the SPS is in compliance with a restriction that prohibits the SPS from including two or more copies of the same LTRP entry.

47. The video encoding device of claim 42, wherein, for each respective LTRP entry in the SPS, the slice header includes an index to the respective LTRP entry only if the slice header does not already include a copy of the index to the respective LTRP entry.

48. The video encoding device of claim 42, wherein the one or more processors are configured to generate the slice header such that the slice header is in compliance with a restriction that prohibits the slice header from including two indexes to a single LTRP entry in the SPS.

49. The video encoding device of claim 42, wherein, for each respective LTRP entry in the SPS, the slice header does not include an LTRP entry matching the respective LTRP entry in the SPS.

50. The video encoding device of claim 42, wherein the particular LTRP entry is a first LTRP entry and the one or more processors are configured to generate the slice header such that the slice header is in compliance with a restriction that prohibits the slice header from including a second LTRP entry if the slice header includes an index to an equivalent LTRP entry in the SPS, wherein the second LTRP entry includes a least-significant bits (LSB) syntax element and a usage syntax element, and the equivalent LTRP entry includes a LSB syntax element that matches the LSB syntax element of the second LTRP entry and the equivalent LTRP entry includes a usage syntax element that matches the usage syntax element of the particular reference picture, wherein the LSB syntax element of the second LTRP entry and the LSB syntax element of the equivalent LTRP entry indicate LSBs of picture order count (POC) values, wherein the usage syntax element of the second LTRP entry and the usage syntax element of the equivalent LTRP entry indicate whether reference pictures are used for reference by the current picture.

51. The video encoding device of claim 41, wherein the one or more processors are configured to:

include, in the slice header, a first LTRP entry indicating that a particular reference picture is in a long term reference picture set of the current picture; and

include, in the slice header, a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in the long-term reference picture set of the current picture.

52. The video encoding device of claim 41, wherein the one or more processors are configured to generate the slice header such that the slice header is in compliance with a restriction that prohibits the slice header from including two LTRP entries that indicate reference pictures having the same POC value.

53. The video encoding device of claim 41, wherein a long-term reference picture set of the current picture includes a first subset and a second subset, the first subset including LTRPs used for reference by the current picture, the second subset including LTRPs used for reference by other pictures.

54. The video encoding device of claim 53, wherein the one or more processors are configured to generate the slice header such that the slice header is in compliance with a restriction that prohibits the first subset from including two reference pictures with the same POC value, a restriction that prohibits the second subset from including two reference pictures with the same POC value, and a restriction that prohibits the first and second subsets from including reference pictures with the same POC value.

55. A video encoding device comprising:

means for storing video data;

means for signaling, in a slice header for a current slice of a current picture of the video data, a set of one or more long-term reference picture (LTRP) entries, wherein:

each respective LTRP entry of the one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture.

56. A computer-readable storage medium having instructions stored thereon that, when executed by a video encoding device, configure the video encoding device to:

signal, in a slice header for a current slice of a current picture, a set of one or more long-term reference picture (LTRP) entries, wherein:

each respective LTRP entry of the one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture.

CLAIMS

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

obtaining, from a bitstream that includes encoded video data, a slice header of a current slice of a current picture of the video data, wherein:

a set of reference pictures for the current picture consists of the following reference picture subsets: RefPicSetStCurrBefore, RefPicSetStCurrAfter, RefPicSetStFoll, RefPicSetLtCurr and RefPicSetLtFoll, reference pictures in RefPicSetLtCurr and RefPicSetLtFoll being long term reference pictures (LTRPs);

a set of one or more LTRP entries is received in the slice header,

each respective LTRP entry of the set of one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP of the LTRPs, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture;

storing one or more of the reference pictures in a decoded picture buffer, the one or more reference pictures comprising video blocks;

performing, based on the video blocks of the one or more reference pictures stored in the decoded picture buffer, prediction of the video data.

2. The method of claim **1**, wherein:

the method further comprises obtaining, from the bitstream, a sequence parameter set (SPS) that is applicable to the current picture, the SPS including a particular LTRP entry that refers to a particular reference picture, the particular LTRP entry being in the set of one or more LTRP entries; and

the particular LTRP entry is signaled in the slice header by the slice header including an index to the particular LTRP entry.

3. The method of claim **2**, wherein the particular LTRP entry is a first LTRP entry and the slice header includes a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

4. The method of claim **2**, wherein:

the particular LTRP entry is a first LTRP entry,

the SPS includes the first LTRP entry and a second LTRP entry; and

the slice header includes an index to the second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

5. The method of claim **2**, wherein the SPS is in compliance with a restriction that prohibits the SPS from including two or more copies of the same LTRP entry.

6. The method of claim **2**, wherein the slice header is in compliance with a restriction that prohibits the slice header from including two indexes to a single LTRP entry in the SPS.

7. The method of claim **2**, wherein, for each respective LTRP entry in the SPS, the slice header does not include an LTRP entry matching the respective LTRP entry in the SPS.

8. The method of claim **2**, wherein the particular LTRP entry is a first LTRP entry and the slice header is in compliance with a restriction that prohibits the slice header from including a second LTRP entry if the slice header includes an index to an equivalent LTRP entry in the SPS, wherein the second LTRP entry includes a least-significant bits (LSB) syntax element and a usage syntax element, and the equivalent LTRP entry includes a LSB syntax element that matches the LSB syntax element of the second LTRP entry and the equivalent LTRP entry includes a usage syntax element that matches the usage syntax element of the second LTRP entry, wherein the LSB syntax element of the second LTRP entry and the LSB syntax element of the equivalent LTRP entry indicate LSBs of picture order count (POC) values, and wherein the usage syntax element of the second LTRP entry and the usage syntax element of the equivalent LTRP entry indicate whether reference pictures are used for reference by the current picture.

9. The method of claim **1**, wherein the slice header includes a first LTRP entry indicating that a particular reference picture is in a long term reference picture set of the current picture and includes a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in the long-term reference picture set of the current picture.

10. The method of claim **1**, wherein the slice header is in compliance with a restriction that prohibits the slice header from including two LTRP entries that indicate reference pictures having the same POC value.

11. The method of claim **1**, wherein the slice header is in compliance with a restriction that prohibits the RefPicSetLt-

Curr from including two reference pictures with the same POC value, a restriction that prohibits the RefPicSetLtFoll from including two reference pictures with the same POC value, and a restriction that prohibits the RefPicSetLtCurr and the RefPicSetLtFoll from including reference pictures with the same POC value.

12. A video decoding device comprising:

a decoded picture buffer; and

one or more processors configured to:

obtain, from a bitstream, a slice header of a current slice of a current picture of video data, wherein:

a set of reference pictures for the current picture consists of the following reference picture subsets: RefPicSetStCurrBefore, RefPicSetStCurrAfter, RefPicSetStFoll, RefPicSetLtCurr and RefPicSetLtFoll, reference pictures in RefPicSetLtCurr and RefPicSetLtFoll being long term reference pictures (LTRPs);

a set of one or more LTRP entries is received in the slice header,

each respective LTRP entry of the set of one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP of the LTRPs, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture;

store one or more of the reference pictures in the decoded picture buffer, the one or more reference pictures comprising video blocks;

perform, based on the video blocks of the one or more references pictures stored in the decoded picture buffer, prediction of the video data.

13. The video decoding device of claim **12**, wherein:

the one or more processors are further configured to obtain, from the bitstream, a sequence parameter set (SPS) that is applicable to the current picture, the SPS including a particular LTRP entry that refers to a particular reference picture, the particular LTRP entry being in the set of one or more LTRP entries; and

the particular LTRP entry is signaled in the slice header by the slice header including an index to the particular LTRP entry.

14. The video decoding device of claim **13**, wherein the particular LTRP entry is a first LTRP entry and the slice header includes a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

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

the particular LTRP entry is a first LTRP entry,

the SPS includes the first LTRP entry and a second LTRP entry; and

the slice header includes an index to the second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

16. The video decoding device of claim **13**, wherein the SPS is in compliance with a restriction that prohibits the SPS from including two or more copies of the same LTRP entry.

17. The video decoding device of claim **13**, wherein the slice header is in compliance with a restriction that prohibits the slice header from including two indexes to a single LTRP entry in the SPS.

18. The video decoding device of claim **13**, wherein, for each respective LTRP entry in the SPS, the slice header does not include an LTRP entry matching the respective LTRP entry in the SPS.

19. The video decoding device of claim **13**, wherein the particular LTRP entry is a first LTRP entry and the slice header is in compliance with a restriction that prohibits the slice header from including a second LTRP entry if the slice header includes an index to an equivalent LTRP entry in the SPS, wherein the second LTRP entry includes a least-significant bits (LSB) syntax element and a usage syntax element, and the equivalent LTRP entry includes a LSB syntax element that matches the LSB syntax element of the second LTRP entry and the equivalent LTRP entry includes a usage syntax element that matches the usage syntax element of the second LTRP entry, wherein the LSB syntax element of the second LTRP entry and the LSB syntax element of the equivalent LTRP entry indicate LSBs of picture order count (POC) values, wherein the usage syntax element of the second LTRP entry and the usage syntax element of the equivalent LTRP entry indicate whether reference pictures are used for reference by the current picture.

20. The video decoding device of claim **12**, wherein the slice header includes a first LTRP entry indicating that a particular reference picture is in a long term reference picture set of the current picture and includes a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in the long-term reference picture set of the current picture.

21. The video decoding device of claim **12**, wherein the slice header is in compliance with a restriction that prohibits the slice header from including two LTRP entries that indicate reference pictures having the same POC value.

22. The video decoding device of claim **12**, wherein the slice header is in compliance with a restriction that prohibits the RefPicSetLtCurr from including two reference pictures with the same POC value, a restriction that prohibits the RefPicSetLtFoll from including two reference pictures with the same POC value, and a restriction that prohibits the RefPicSetLtCurr and the RefPicSetLtFoll from including reference pictures with the same POC value.

23. The video decoding device of claim **12**, wherein the video decoding device comprises at least one of:

an integrated circuit;

a microprocessor; or

a wireless communication device.

24. The video decoding device of claim **12**, further comprising a display configured to display decoded video data.

25. A video decoding device comprising:

means for obtaining, from a bitstream, a slice header of a current slice of a current picture of video data, wherein:

a set of reference pictures for the current picture consists of the following reference picture subsets: RefPicSetStCurrBefore, RefPicSetStCurrAfter, RefPicSetStFoll, RefPicSetLtCurr and RefPicSetLtFoll, reference pictures in RefPicSetLtCurr and RefPicSetLtFoll being long term reference pictures (LTRPs);

a set of one or more LTRP entries is received in the slice header,

each respective LTRP entry of the set of one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP of the LTRPs, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture;

means for storing one or more of the reference pictures in a decoded picture buffer, the one or more reference pictures comprising video blocks;

means for performing, based on the video blocks of the one or more reference pictures stored in the decoded picture buffer, prediction of the video data.

26. A non-transitory computer-readable storage medium having instructions stored thereon that, when executed by a video decoding device, configure the video decoding device to:

obtain, from a bitstream, a slice header of a current slice of a current picture, wherein:

a set of reference pictures for the current picture consists of the following reference picture subsets: RefPicSetStCurrBefore, RefPicSetStCurrAfter, RefPicSetStFoll, RefPicSetLtCurr and RefPicSetLtFoll, reference pictures in RefPicSetLtCurr and RefPicSetLtFoll being long term reference pictures (LTRPs);

a set of one or more LTRP entries is signaled in the slice header,

each respective LTRP entry of the set of one or more LTRP entries is a tuple consisting of a first syntax

element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP of the LTRPs, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture;

store one or more of the reference pictures in a decoded picture buffer, the one or more reference pictures comprising video blocks;

perform, based on the video blocks of the one or more reference pictures stored in the decoded picture buffer, prediction of the video data.

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

encoding video data, wherein:

a set of reference pictures for a current picture of the video data consists of the following reference pictures subsets: RefPicSetStCurrBefore, RefPicSetStCurrAfter, RefPicSetStFoll, RefPicSetLtCurr and RefPicSetLtFoll, reference pictures in RefPicSetLtCurr and RefPicSetLtFoll being long term reference pictures (LTRPs),

encoding the video data comprises signaling, in a slice header for a current slice of the current picture, a set of one or more long-term reference picture (LTRP) entries,

each respective LTRP entry of the set of one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture

Order Count (POC) value of a respective LTRP of the LTRPs, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture; and

outputting the encoded video data.

28. The method of claim **27**, wherein:

the method further comprises generating a sequence parameter set (SPS) that is applicable to the current picture, the SPS including a particular LTRP entry that refers to a particular reference picture, the particular LTRP entry being in the set of one or more LTRP entries; and

signaling the set of one or more LTRP entries in the slice header comprises including, in the slice header, an index to the particular LTRP entry.

29. The method of claim **28**, wherein the particular LTRP entry is a first LTRP entry and the slice header includes a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

30. The method of claim **28**, wherein:

the particular LTRP entry is a first LTRP entry,

the SPS includes the first LTRP entry and a second LTRP entry; and

signaling the set of one or more LTRP entries in the slice header comprises including, in the slice header, an index to the second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

31. The method of claim **28**, wherein generating the SPS comprises generating the SPS such that the SPS includes the particular LTRP entry only if the SPS does not already include a copy of the particular LTRP entry.

32. The method of claim **28**, wherein generating the SPS comprises generating the SPS such that the SPS is in compliance with a restriction that prohibits the SPS from including two or more copies of the same LTRP entry.

33. The method of claim **28**, wherein, for each respective LTRP entry in the SPS, the slice header includes an index to the respective LTRP entry only if the slice header does not already include a copy of the index to the respective LTRP entry.

34. The method of claim **28**, wherein the slice header is in compliance with a restriction that prohibits the slice header from including two indexes to a single LTRP entry in the SPS.

35. The method of claim **28**, wherein, for each respective LTRP entry in the SPS, the slice header does not include an LTRP entry matching the respective LTRP entry in the SPS.

36. The method of claim **28**, wherein the particular LTRP entry is a first LTRP entry and the slice header is in compliance with a restriction that prohibits the slice header from including a second LTRP entry if the slice header includes an index to an equivalent LTRP entry in the SPS, wherein the second LTRP entry includes a least-significant bits (LSB) syntax element and a usage syntax element, and the equivalent LTRP entry includes a LSB syntax element that matches the LSB syntax element of the second LTRP entry and the equivalent LTRP entry includes a usage syntax element that matches the usage syntax element of the second LTRP entry, wherein the LSB syntax element of the second LTRP entry and the LSB syntax element of the equivalent LTRP entry indicate LSBs of picture order count (POC)

values, and wherein the usage syntax element of the second LTRP entry and the usage syntax element of the equivalent LTRP entry indicate whether reference pictures are used for reference by the current picture.

37. The method of claim **27**, wherein signaling the set of one or more LTRP entries comprises:

signaling, in the slice header, a first LTRP entry indicating that a particular reference picture is in a long term reference picture set of the current picture; and

signaling, in the slice header, a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in the long-term reference picture set of the current picture.

38. The method of claim **27**, wherein the slice header is in compliance with a restriction that prohibits the slice header from including two LTRP entries that indicate reference pictures having the same POC value.

39. The method of claim **27**, wherein the slice header is in compliance with a restriction that prohibits the RefPicSetLtCurr from including two reference pictures with the same POC value, a restriction that prohibits the RefPicSetLtFoll from including two reference pictures with the same POC value, and a restriction that prohibits the RefPicSetLtCurr and the RefPicSetLtFoll from including reference pictures with the same POC value.

40. A video encoding device comprising:

one or more processors configured to:

encode video data, wherein:

a set of reference pictures for a current picture of the video data consists of the following reference picture subsets: RefPicSetStCurrBefore, RefPicSetStCurrAfter, RefPicSetStFoll, RefPicSetLtCurr and RefPicSetLtFoll, reference pictures in

RefPicSetLtCurr and RefPicSetLtFoll being long term reference pictures (LTRPs),

as part of encoding the video data, the one or more processors signal, in a slice header for a current slice of the current picture, a set of one or more long-term reference picture (LTRP) entries,

each respective LTRP entry of the set of one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP of the LTRPs, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture; and

an output interface configured to output the encoded video data.

41. The video encoding device of claim **40**, wherein the one or more processors are configured to:

generate a sequence parameter set (SPS) that is applicable to the current picture, the SPS including a particular LTRP entry that refers to a particular reference picture, the particular LTRP entry being in the set of one or more LTRP entries; and

signal the set of one or more LTRP entries in the slice header in part by including, in the slice header, an index to the particular LTRP entry.

42. The video encoding device of claim **41**, wherein the particular LTRP entry is a first LTRP entry and the slice header includes a second LTRP entry only if the second

LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

43. The video encoding device of claim **41**, wherein:

the particular LTRP entry is a first LTRP entry,

the SPS includes the first LTRP entry and a second LTRP entry; and

the one or more processors are configured to include, in the slice header, an index to the second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in a long-term reference picture set of the current picture.

44. The video encoding device of claim **41**, wherein the one or more processors are configured to generate the SPS such that the SPS includes the particular LTRP entry only if the SPS does not already include a copy of the particular LTRP entry.

45. The video encoding device of claim **41**, wherein the one or more processors are configured to generate the SPS such that the SPS is in compliance with a restriction that prohibits the SPS from including two or more copies of the same LTRP entry.

46. The video encoding device of claim **41**, wherein, for each respective LTRP entry in the SPS, the slice header includes an index to the respective LTRP entry only if the slice header does not already include a copy of the index to the respective LTRP entry.

47. The video encoding device of claim **41**, wherein the one or more processors are configured to generate the slice header such that the slice header is in compliance with a restriction that prohibits the slice header from including two indexes to a single LTRP entry in the SPS.

48. The video encoding device of claim **41**, wherein, for each respective LTRP entry in the SPS, the slice header does

not include an LTRP entry matching the respective LTRP entry in the SPS.

49. The video encoding device of claim **41**, wherein the particular LTRP entry is a first LTRP entry and the one or more processors are configured to generate the slice header such that the slice header is in compliance with a restriction that prohibits the slice header from including a second LTRP entry if the slice header includes an index to an equivalent LTRP entry in the SPS, wherein the second LTRP entry includes a least-significant bits (LSB) syntax element and a usage syntax element, and the equivalent LTRP entry includes a LSB syntax element that matches the LSB syntax element of the second LTRP entry and the equivalent LTRP entry includes a usage syntax element that matches the usage syntax element of the second LTRP entry, wherein the LSB syntax element of the second LTRP entry and the LSB syntax element of the equivalent LTRP entry indicate LSBs of picture order count (POC) values, wherein the usage syntax element of the second LTRP entry and the usage syntax element of the equivalent LTRP entry indicate whether reference pictures are used for reference by the current picture.

50. The video encoding device of claim **40**, wherein the one or more processors are configured to:

signal, in the slice header, a first LTRP entry indicating that a particular reference picture is in a long term reference picture set of the current picture; and

signal, in the slice header, a second LTRP entry only if the second LTRP entry does not indicate that the particular reference picture is in the long-term reference picture set of the current picture.

51. The video encoding device of claim **40**, wherein the one or more processors are configured to generate the slice

header such that the slice header is in compliance with a restriction that prohibits the slice header from including two LTRP entries that indicate reference pictures having the same POC value.

52. The video encoding device of claim **40**, wherein the slice header is in compliance with a restriction that prohibits the RefPicSetLtCurr from including two reference pictures with the same POC value, a restriction that prohibits the RefPicSetLtFoll from including two reference pictures with the same POC value, and a restriction that prohibits the RefPicSetLtCurr and the RefPicSetLtFoll from including reference pictures with the same POC value.

53. A video encoding device comprising:

means for encoding video data, wherein:

a set of reference pictures for a current picture of the video data consists of the following reference pictures subsets: RefPicSetStCurrBefore, RefPicSetStCurrAfter, RefPicSetStFoll, RefPicSetLtCurr and RefPicSetLtFoll, reference pictures in RefPicSetLtCurr and RefPicSetLtFoll being long term reference pictures (LTRPs),

the means for encoding the video data comprises means for signaling, in a slice header for a current slice of the current picture, a set of one or more long-term reference picture (LTRP) entries,

each respective LTRP entry of the set of one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP of the LTRPs, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture; and

means for outputting the encoded video data.

54. A non-transitory computer-readable storage medium having instructions stored thereon that, when executed by a video encoding device, configure the video encoding device to:

encode video data, wherein:

a set of reference pictures for a current picture of the video data consists of the following reference pictures subsets: RefPicSetStCurrBefore, RefPicSetStCurrAfter, RefPicSetStFoll, RefPicSetLtCurr and RefPicSetLtFoll, reference pictures in RefPicSetLtCurr and RefPicSetLtFoll being long term reference pictures (LTRPs),

as part of configuring the video encoding device to encode the video data, the instructions configure the video encoding device to signal, in a slice header for a current slice of the current picture, a set of one or more long-term reference picture (LTRP) entries,

each respective LTRP entry of the set of one or more LTRP entries is a tuple consisting of a first syntax element and a second syntax element, the first syntax element indicating least significant bits of a Picture Order Count (POC) value of a respective LTRP of the LTRPs, the second syntax element indicating whether the respective LTRP is used for reference by the current picture, and

the slice header is in compliance with a restriction that prohibits the slice header from signaling two LTRP entries referring to the same reference picture; and

output the encoded video data.