## Amended Set of Claims 1 to 63

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

determining spatial candidate motion vectors associated with a current portion of a current video frame, wherein the spatial candidate motion vectors comprise motion vectors determined for neighboring portions of the current video frame adjacent to the current portion;

determining a temporal candidate motion vector associated with the current portion of the current video frame, wherein the temporal candidate motion vector comprises a motion vector determined for a portion of a reference video frame;

pruning the spatial candidate motion vectors to remove duplicate ones of the spatial candidate motion vectors without considering the temporal candidate motion vector during the pruning process;

selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as a selected candidate motion vector for a motion vector prediction process;

determining an index that identifies a location of the selected one of the candidate motion vectors in a list of the temporal candidate motion vector and the spatial candidate motion vectors that remain after pruning; and

signaling the index in a bitstream.

2. The method of claim 1, wherein pruning the spatial candidate motion vectors comprises pruning only the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors.

3. The method of claim 1,

wherein the current portion comprises a current coding unit (CU),

wherein the portion of the reference frame comprises a CU of the reference frame.

4. The method of claim 1, further comprising generating a predictive unit (PU) that includes prediction data comprising at least the selected candidate motion vector,

wherein signaling the selected candidate motion vector comprises signaling the PU in the bitstream.

5. The method of claim 1, wherein signaling the index comprises signaling a motion vector predictor (MVP) index that identifies the location of the selected candidate motion vector in the list of the temporal candidate motion vector and the spatial candidate motion vectors that remain after pruning.

6. The method of claim 1, further comprising encoding the index using one of a unary code or a truncated unary code to generate an encoded index,

wherein signaling the index comprises signaling the encoded index in the bitstream.

7. The method of claim 1, wherein selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning comprises:

performing a rate-distortion analysis with respect to each of the temporal candidate motion vector and the spatial candidate motion vectors remaining after pruning; and

selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as the selected candidate motion vector based on the rate-distortion analysis.

8. The method of claim 1, further comprising determining whether each of the determined spatial candidate motion vectors were spatially predicted or temporally predicted,

wherein pruning the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors comprises pruning only those of the determined spatial candidate motion vectors that were determined to be spatially predicted without pruning any of those of the determined spatial candidate motion vectors that were determined to be temporally predicted, and

wherein selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as the selected candidate motion vector comprises selecting the temporal candidate motion vector, one of the spatial candidate motion vectors that was determined to be temporally predicted or one of the

spatial candidate motion vectors determined to be spatially predicted remaining after pruning as the selected candidate motion vector.

9. The method of claim 1, further comprising:

determining whether each of the determined spatial candidate motion vectors were spatially predicted or temporally predicted; and

replacing any of the spatial candidate motion vectors that were determined to be temporally predicted with a default candidate motion vector, wherein the default candidate motion vector includes default motion vector information, wherein the default motion vector information comprises a motion vector amplitude, a prediction direction identifying whether the reference frame precedes or follows the current frame temporally, and a reference index identifying the reference frame, and

wherein pruning the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors comprises pruning the spatial candidate motion vectors that include one or more of the default candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors.

10. The method of claim 1, further comprising determining one or more additional spatial candidate motion vectors that are not temporally predicted and that are different from any of the temporal candidate motion vector and the spatial candidate motion vectors remaining after pruning,

wherein selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning comprises selecting the temporal candidate motion vector, one of the spatial candidate motion vectors remaining after pruning or one of the additional spatial candidate motion vectors as the selected candidate motion vector.

11. An apparatus for encoding video data, the apparatus comprising:

means for determining spatial candidate motion vectors associated with current portion of a current video frame, wherein the spatial candidate motion vectors comprise motion vectors determined for neighboring portions for the current video frame adjacent to the current portion;

means for determining a temporal candidate motion vector associated with the current portion of the current video frame, wherein the temporal candidate motion vector comprises a motion vector determined for a portion of a reference video frame;

means for pruning the spatial candidate motion vectors to remove duplicate ones of the spatial candidate motion vectors without considering the temporal candidate motion vector during the pruning process;

means for selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as a selected candidate motion vector for a motion vector prediction process;

means for determining an index that identifies a location of the selected one of the candidate motion vectors in a list of the temporal candidate motion vector and the spatial candidate motion vectors that remain after pruning; and

means for signaling the index in a bitstream.

12. The apparatus of claim 11, wherein the means for pruning the spatial candidate motion vectors comprises means for pruning only the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors.

13. The apparatus of claim 11, further comprising means for determining whether each of the determined spatial candidate motion vectors were spatially predicted or temporally predicted,

wherein the means for pruning the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors comprises means for pruning only those of the determined spatial candidate motion vectors that were determined to be spatially predicted without pruning any of those of the determined spatial candidate motion vectors that were determined to be temporally predicted, and

wherein the means for selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as the selected candidate motion vector comprises means for selecting the temporal candidate motion vector, one of the spatial candidate motion vectors that was determined to be temporally predicted or one of the spatial candidate motion vectors determined to be spatially predicted remaining after pruning as the selected candidate motion vector.

14. The apparatus of claim 11, further comprising:

means for determining whether each of the determined spatial candidate motion vectors were spatially predicted or temporally predicted; and

means for replacing any of the spatial candidate motion vectors that were determined to be temporally predicted with a default candidate motion vector, wherein the default candidate motion vector includes default motion vector information, wherein the default motion vector information comprises a motion vector amplitude, a prediction direction identifying whether the reference frame precedes or follows the current frame temporally, and a reference index identifying the reference frame, and

wherein the means for pruning the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors comprises means for pruning the spatial candidate motion vectors that include one or more of the default candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors.

15. The apparatus of claim 11, further comprising means for determining one or more additional spatial candidate motion vectors that are not temporally predicted and that are different from any of the temporal candidate motion vector and the spatial candidate motion vectors remaining after pruning,

wherein the means for selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning comprises means for selecting the temporal candidate motion vector, one of the spatial candidate motion vectors remaining after pruning or one of the additional spatial candidate motion vectors as the selected candidate motion vector.

16. An apparatus for encoding video data, the apparatus comprising:

motion compensation unit that determines spatial candidate motion vectors associated with current portion of a current video frame, wherein the spatial candidate motion vectors comprise motion vectors determined for neighboring portions for the current video frame adjacent to the current portion, determines a temporal candidate motion vector associated with the current portion of the current video frame, wherein the temporal candidate motion vector comprises a motion vector determined for a portion of a reference video frame, and prunes the spatial candidate motion vectors to remove duplicate ones of the spatial candidate motion vectors without considering the temporal candidate motion vector during the pruning process;

a mode selection unit that selects the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as a selected candidate motion vector for a motion vector prediction process and determines an index that identifies a location of the selected one of the candidate motion vectors in a list of the temporal candidate motion vector and the spatial candidate motion vectors that remain after pruning; and

an entropy coding unit that signals the index in a bitstream.

17. The apparatus of claim 16, wherein the motion compensation unit prunes only the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors.

18. The apparatus of claim 16,

wherein the current portion comprises a current coding unit (CU),

wherein the portion of the reference frame comprises a CU of the reference frame.

19. The apparatus of claim 16, wherein the motion compensation unit further generates a predictive unit (PU) that includes prediction data comprising at least the selected candidate motion vector,

wherein the entropy coding unit signals the PU in the bitstream.

20. The apparatus of claim 16, wherein the entropy coding unit signals the index as a motion vector predictor (MVP) index that identifies the location of the selected candidate motion vector in the list of the temporal candidate motion vector and the spatial candidate motion vectors that remain after pruning.

21. The apparatus of claim 16, wherein the entropy coding unit encodes the index using one of a unary code or a truncated unary code to generate an encoded index and signals the encoded index in the bitstream.

22. The apparatus of claim 16, wherein the mode select unit performs a rate-distortion analysis with respect to each of the temporal candidate motion vector and the spatial candidate motion vectors remaining after pruning and selects the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as the selected candidate motion vector based on the rate-distortion analysis.

23. The apparatus of claim 16,

wherein the motion compensation unit further determines whether each of the determined spatial candidate motion vectors were spatially predicted or temporally predicted and prunes only those of the determined spatial candidate motion vectors that were determined to be spatially predicted without pruning any of those of the determined spatial candidate motion vectors that were determined to be temporally predicted, and

wherein the mode select unit selects the temporal candidate motion vector, one of the spatial candidate motion vectors that was determined to be temporally predicted or one of the spatial candidate motion vectors determined to be spatially predicted remaining after pruning as the selected candidate motion vector.

24. The apparatus of claim 16, wherein the motion compensation unit determines whether each of the determined spatial candidate motion vectors were spatially predicted or temporally predicted, replaces any of the spatial candidate motion vectors that were determined to be temporally predicted with a default candidate motion vector, wherein the default candidate motion vector includes default motion vector information, wherein the default motion vector information comprises a motion vector amplitude, a prediction direction identifying whether the reference frame precedes or follows the current frame temporally, and a reference index identifying the reference frame, and prunes the spatial candidate motion vectors that include one or more of the default candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors.

25. The apparatus of claim 16, wherein the motion compensation unit further determines one or more additional spatial candidate motion vectors that are not temporally predicted and that are different from any of the temporal candidate motion vector and the spatial candidate motion vectors remaining after pruning,

wherein the mode select unit selects the temporal candidate motion vector, one of the spatial candidate motion vectors remaining after pruning or one of the additional spatial candidate motion vectors as the selected candidate motion vector.

26. A non-transitory computer-readable medium comprising instructions that, when executed, cause one or more processors to:

determine spatial candidate motion vectors associated with current portion of a current video frame, wherein the spatial candidate motion vectors comprise motion vectors determined for neighboring portions of the current video frame adjacent to the current portion;

determine a temporal candidate motion vector associated with the current portion of the current video frame, wherein the temporal candidate motion vector comprises a motion vector determined for a portion of a reference video frame;

prune the spatial candidate motion vectors to remove duplicate ones of the spatial candidate motion vectors without considering the temporal candidate motion vector during the pruning process;

select the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as a selected candidate motion vector for a motion vector prediction process;

determine an index that identifies a location of the selected one of the candidate motion vector in a list of the temporal candidate motion vector and the spatial candidate motion vectors that remain after pruning; and

signal the index in a bitstream.

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

determining spatial candidate motion vectors associated with a current portion of a current video frame, wherein the spatial candidate motion vectors comprise neighbor motion vectors determined for spatially neighboring portions adjacent to the current portion within the current video frame;

pruning the spatial candidate motion vectors to remove duplicate ones of the spatial candidate motion vectors without considering a temporal candidate motion vector determined for the current portion of the current video frame during the pruning process, wherein the temporal candidate motion vector comprises a motion vector determined for a portion of a reference video frame;

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selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as a selected candidate motion vector for a motion vector prediction process based on a motion vector predictor (MVP) index signaled in a bitstream; and

performing motion compensation based on the selected candidate motion vector.

28. The method of claim 27, wherein pruning the spatial candidate motion vectors comprises pruning only the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors.

29. The method of claim 27, further comprising:

determining a number of candidate motion vectors as the temporal candidate motion vector plus the ones of the spatial candidate motion vectors remaining after pruning;

parsing a coded MVP index from the bitstream based on the determined number of candidate motion vectors, wherein the coded MVP index comprises one of a unary coded MVP index and a truncated unary coded MVP index; and

decoding the coded MVP index to determine the MVP index.

30. The method of claim 27, further comprising:

determining that the temporal candidate motion vector for the current portion of the current frame is unavailable; and

in response to determining that the temporal candidate motion vector is unavailable, determining default motion vector information for the temporal candidate motion vector, wherein the default motion vector information comprises a motion vector amplitude, a prediction direction identifying whether the reference frame precedes or follows the current frame temporally, and a reference index identifying the reference frame.

31. The method of claim 30, further comprising determining a context for performing a context adaptive lossless statistical decoding based on the determined default motion vector information, wherein the context identifies a coding table to use to decode the video data.

32. The method of claim 30, wherein determining the default motion vector information comprises:

determining whether the reference frame was intra-coded; and

when the reference frame is determined to be intra-coded, deriving the default motion vector information based on spatial motion vectors determined for the portion of the reference frame.

33. The method of claim 27, further comprising:

determining that one of the spatial candidate motion vectors is unavailable; and

in response to determining that the one of the spatial candidate motion vectors is unavailable, determining a default candidate motion vector that includes default motion vector information for the one of the spatial candidate motion vectors based on a motion vector prediction mode, and

wherein pruning the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors comprises pruning the spatial candidate motion vectors that include one or more of the default candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors, and

wherein selecting the temporal candidate emotion vector comprises selecting the temporal candidate motion vector, one of the spatial candidate motion vectors remaining after pruning as the selected candidate motion vector comprises selecting the temporal candidate motion vector or one of the spatial candidate motion vectors determined to be unavailable or one of the spatial candidate motion vectors remaining after pruning based on the motion vector predictor (MVP) index signaled in the bitstream.

34. The method of claim 33, wherein determining the default motion vector information comprises determining a motion vector amplitude without determining a prediction direction identifying whether the reference frame precedes or follows the current frame temporally or a reference index identifying the reference frame when the motion vector prediction mode is an adaptive motion vector prediction (AMVP) mode.

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35. The method of claim 33, wherein determining the default motion vector information comprises determining a motion vector amplitude, a prediction direction identifying whether the reference frame precedes or follows the current frame temporally, and a reference index identifying the reference frame when the motion vector prediction mode is a merge mode.

36. The method of claim 33, further comprising determining a context for performing a context adaptive lossless statistical decoding based on the determined default motion vector information, wherein the context identifies a coding table to use to decode the video data.

37. The method of claim 27, further comprising:

determining that one of the spatial candidate motion vectors is unavailable; and

in response to determining that the one of the spatial candidate motion vectors is unavailable, removing the one of the spatial candidate motion vectors that is determined to be unavailable from the pruning process,

wherein pruning the spatial candidate motion vectors comprises pruning only those of the spatial candidate motion vectors that were determined to be available to remove the duplicate ones of the spatial candidate motion vectors without removing a temporal candidate motion vector determined for the current portion of the current video frame or the one of the spatial candidate motion vectors that is determined to be unavailable.

38. The method of claim 1, further comprising determining one or more additional spatial candidate motion vectors that are not temporally predicted and that are different from any of the temporal candidate motion vector and the spatial candidate motion vectors remaining after pruning,

wherein selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning comprises selecting the temporal candidate motion vector, one of the spatial candidate motion vectors remaining after pruning or one of the additional spatial candidate motion vectors as the selected candidate motion vector.

39. An apparatus for decoding video data, the apparatus comprising:

means for determining spatial candidate motion vectors associated with a current portion of a current video frame, wherein the spatial candidate motion vectors comprise motion vectors determined for neighboring portions of the current video frame adjacent to the current portion;

means for pruning the spatial candidate motion vectors to remove duplicate ones of the spatial candidate motion vectors without considering a temporal candidate motion vector determined for the current portion of the current video frame during the pruning process, wherein the temporal candidate motion vector comprises a motion vector determined for a portion of a reference video frame;

means for selecting one of the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as a selected candidate motion vector for a motion vector prediction process based on a motion vector predictor (MVP) index signaled in a bitstream; and

means for performing motion compensation based on the selected candidate motion vector.

40. The apparatus of claim 39, wherein the means for pruning the spatial candidate motion vectors comprises means for pruning only the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors.

41. The apparatus of claim 39, further comprising:

means for determining a number of candidate motion vectors as the temporal candidate motion vector plus the ones of the spatial candidate motion vectors remaining after pruning;

means for parsing a coded MVP index from the bitstream based on the determined number of candidate motion vectors, wherein the coded MVP index comprises one of a unary coded MVP index and a truncated unary coded MVP index; and

means for decoding the coded MVP index to determine the MVP index.

42. The apparatus of claim 39, further comprising:

means for determining that the temporal candidate motion vector for the current portion of the current frame is unavailable; and

in response to determining that the temporal candidate motion vector is unavailable, means for determining default motion vector information for the temporal candidate motion vector, wherein the default motion vector information comprises a motion vector amplitude, a prediction direction identifying whether the reference frame precedes or follows the current frame temporally, and a reference index identifying the reference frame.

43. The apparatus of claim 42, further comprising means for determining a context for performing a context adaptive lossless statistical decoding based on the determined default motion vector information, wherein the context identifies a coding table to use to decode the video data.

44. The apparatus of claim 42, wherein the means for determining the default motion vector information comprises:

means for determining whether the reference frame was intra-coded; and

when the reference frame is determined to be intra-coded, means for deriving the default motion vector information based on spatial motion vectors determined for the portion of the reference frame.

45. The apparatus of claim 39, further comprising:

means for determining that one of the spatial candidate motion vectors is unavailable; and

in response to determining that the one of the spatial candidate motion vectors is unavailable, means for determining a default candidate motion vector that includes default motion vector information for the one of the spatial candidate motion vectors based on a motion vector prediction mode, and

wherein the means for pruning the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors comprises means for pruning the spatial candidate motion vectors that include one or more of the default candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors, and

wherein the means for selecting comprises means for selecting the temporal candidate motion vector, one of the spatial candidate motion vectors remaining after pruning as the selected candidate motion vector comprises selecting the temporal candidate motion vector or one of the spatial candidate motion vectors determined to be unavailable or one of the spatial candidate motion vectors remaining after pruning based on the motion vector predictor (MVP) index signaled in the bitstream.

46. The apparatus of claim 45, wherein the means for determining the default motion vector information comprises means for determining a motion vector amplitude without determining a prediction direction identifying whether the reference frame precedes or follows the current frame temporally or a reference index identifying the reference frame when the motion vector prediction mode is an adaptive motion vector prediction (AMVP) mode.

47. The apparatus of claim 45, wherein the means for determining the default motion vector information comprises means for determining a motion vector amplitude, a prediction direction identifying whether the reference frame precedes or follows the current frame temporally, and a reference index identifying the reference frame when the motion vector prediction mode is a merge mode.

48. The apparatus of claim 45, further comprising means for determining a context for performing a context adaptive lossless statistical decoding based on the determined default motion vector information, wherein the context identifies a coding table to use to decode the video data.

49. The apparatus of claim 39, further comprising:

means for determining that one of the spatial candidate motion vectors is unavailable; and

in response to determining that the one of the spatial candidate motion vectors is unavailable, means for removing the one of the spatial candidate motion vectors that is determined to be unavailable from the pruning process,

wherein the means for pruning only the spatial candidate motion vectors comprises means for pruning only those of the spatial candidate motion vectors that were determined to be available to remove the duplicate ones of the spatial candidate motion vectors without removing a temporal candidate motion vector determined for the current portion of the current video frame or the one of the spatial candidate motion vectors that is determined to be unavailable.

50. The apparatus of claim 39, further comprising means for determining one or more additional spatial candidate motion vectors that are not temporally predicted and that are different from any of the temporal candidate motion vector and the spatial candidate motion vectors remaining after pruning,

wherein the means for selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning comprises means for selecting the temporal candidate motion vector, one of the spatial candidate motion vectors remaining after pruning or one of the additional spatial candidate motion vectors as the selected candidate motion vector.

51. An apparatus for decoding video data, the apparatus comprising:

a motion compensation unit that determines spatial candidate motion vectors associated with a current portion of a current video frame, wherein the spatial candidate motion vectors comprise neighbor motion vectors determined for neighboring portions adjacent to the current portion, prunes the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion without considering a temporal candidate motion vector determined for the current portion of the current video frame during the pruning process, wherein the temporal candidate motion vector comprises a motion vector determined for a portion of a reference video frame, selects one of the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as a selected candidate motion vector for a motion vector prediction process based on a motion vector predictor (MVP) index signaled in a bitstream and performs motion compensation based on the selected candidate motion vector.

52. The apparatus of claim 51, wherein the motion compensation unit prunes only the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors.

53. The apparatus of claim 51,

wherein the motion compensation unit determines a number of candidate motion vectors as the temporal candidate motion vector plus the ones of the spatial candidate motion vectors remaining after pruning, and

wherein the apparatus further comprises an entropy decoding unit that parses a coded MVP index from the bitstream based on the determined number of candidate motion vectors, wherein the coded MVP index comprises one of a unary coded MVP index and a truncated unary coded MVP index and decodes the coded MVP index to determine the MVP index.

54. The apparatus of claim 51, further comprising:

determining that the temporal candidate motion vector for the current portion of the current frame is unavailable; and

in response to determining that the temporal candidate motion vector is unavailable, determining default motion vector information for the temporal candidate motion vector, wherein the default motion vector information comprises a motion vector amplitude, a prediction direction identifying whether the reference frame precedes or follows the current frame temporally, and a reference index identifying the reference frame.

55. The apparatus of claim 54, further comprising an entropy decoding unit that determines a context for performing a context adaptive lossless statistical decoding based on the determined default motion vector information, wherein the context identifies a coding table to use to decode the video data.

56. The apparatus of claim 54, wherein the motion compensation unit further determines whether the reference frame was intra-coded and, when the reference frame is determined to be intra-coded, derives the default motion vector information based on spatial motion vectors determined for the portion of the reference frame co-located in the same location of the reference frame as the current portion is in the current frame.

57. The apparatus of claim 51, wherein the motion compensation unit determines that one of the spatial candidate motion vectors is unavailable, in response to determining that the one of the spatial candidate motion vectors is unavailable, determines a default candidate emotion vector that includes default motion vector information for the one of the spatial candidate motion vectors based on a motion vector prediction mode, prunes the spatial candidate motion vectors that include one or more of the default candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors, and selects one of the temporal candidate motion vectors, one of the spatial candidate motion vectors determined to be unavailable or one of the spatial candidate motion vectors remaining after pruning based on a motion vector predictor (MVP) index signaled in a bitstream.

58. The apparatus of claim 57, wherein the motion compensation unit determines a motion vector amplitude without determining a prediction direction identifying whether the reference frame precedes or follows the current frame temporally or a reference index identifying the reference frame when the motion vector prediction mode is an adaptive motion vector prediction (AMVP) mode.

59. The apparatus of claim 57, wherein the motion compensation unit determines a motion vector amplitude, a prediction direction identifying whether the reference frame precedes or follows the current frame temporally, and a reference index identifying the reference frame when the motion vector prediction mode is a merge mode.

60. The apparatus of claim 57, further comprising an entropy decoding unit that determines a context for performing a context adaptive lossless statistical decoding based on the determined default motion vector information, wherein the context identifies a coding table to use to decode the video data.

61. The apparatus of claim 51, wherein the motion compensation unit determines that one of the spatial candidate motion vectors is unavailable, in response to determining that the one of the spatial candidate motion vectors is unavailable, removing the one of the spatial candidate motion vectors that is determined to be unavailable from the pruning process, and prunes only those of the spatial candidate

motion vectors that were determined to be available to remove the duplicate ones of the spatial candidate motion vectors without removing a temporal candidate motion vector determined for the current portion of the current video frame or the one of the spatial candidate motion vectors that is determined to be unavailable.

62. The apparatus of claim 51, wherein the motion compensation unit further determines one or more additional spatial candidate motion vectors that are not temporally predicted and that are different from any of the temporal candidate motion vector and the spatial candidate motion vectors remaining after pruning and selects the temporal candidate motion vector, one of the spatial candidate motion vectors remaining after pruning or one of the additional spatial candidate motion vectors as the selected candidate motion vector.

63. A non-transitory computer-readable medium comprising instructions that, when executed, cause one or more processors to:

determine spatial candidate motion vectors associated with a current portion of a current video frame, wherein the spatial candidate motion vectors comprise motion vectors determined for neighboring portions of the current video frame adjacent to the current portion;

prune the spatial candidate motion vectors to remove duplicate ones of the spatial candidate motion vectors without considering a temporal candidate motion vector determined for the current portion of the current video frame during the pruning process, wherein the temporal candidate motion vector comprises a motion vector determined for a portion of a reference video frame;

select one of the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as a selected candidate motion vector for a motion vector prediction process based on a motion vector predictor (MVP) index signaled in a bitstream; and

perform motion compensation based on the selected candidate motion vector.

CLAIMS

1. A method of encoding video data, the method including:

determining spatial candidate motion vectors associated with a current portion of a current video frame, wherein the spatial candidate motion vectors include motion vectors determined for neighboring portions of the current video frame adjacent to the current portion;

determining a temporal candidate motion vector associated with the current portion of the current video frame, wherein the temporal candidate motion vector includes a motion vector determined for a portion of a reference video frame;

pruning only the spatial candidate motion vectors to remove duplicate ones of the spatial candidate motion vectors without considering the temporal candidate motion vector during the pruning process;

selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as a selected candidate motion vector for a motion vector prediction process;

determining an index that identifies a location of the selected one of the candidate motion vectors in a list of the temporal candidate motion vector and the spatial candidate motion vectors that remain after pruning; and

signaling the index in a bitstream.

2. The method of claim 1, further including determining whether each of the determined spatial candidate motion vectors were spatially predicted or temporally predicted,

wherein pruning the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors includes pruning only those of the determined spatial candidate motion vectors that were determined to be spatially predicted without pruning any of those of the determined spatial candidate motion vectors that were determined to be temporally predicted, and

wherein selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as the selected candidate motion vector includes selecting the temporal candidate motion vector, one of the spatial candidate motion vectors that was determined to be temporally predicted or one of the

spatial candidate motion vectors determined to be spatially predicted remaining after pruning as the selected candidate motion vector.

3. The method of claim 1, further including:

determining whether each of the determined spatial candidate motion vectors were spatially predicted or temporally predicted; and

replacing any of the spatial candidate motion vectors that were determined to be temporally predicted with a default candidate motion vector, wherein the default candidate motion vector includes default motion vector information, wherein the default motion vector information includes a motion vector amplitude, a prediction direction identifying whether the reference frame precedes or follows the current frame temporally, and a reference index identifying the reference frame, and

wherein pruning the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors includes pruning the spatial candidate motion vectors that include one or more of the default candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors.

4. The method of claim 1, further including determining one or more additional spatial candidate motion vectors that are not temporally predicted and that are different from any of the temporal candidate motion vector and the spatial candidate motion vectors remaining after pruning,

wherein selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning includes selecting the temporal candidate motion vector, one of the spatial candidate motion vectors remaining after pruning or one of the additional spatial candidate motion vectors as the selected candidate motion vector.

5. An apparatus for encoding video data, the apparatus including:

means for determining spatial candidate motion vectors associated with current portion of a current video frame, wherein the spatial candidate motion vectors include motion vectors determined for neighboring portions for the current video frame adjacent to the current portion;

means for determining a temporal candidate motion vector associated with the current portion of the current video frame, wherein the temporal candidate motion vector includes a motion vector determined for a portion of a reference video frame;

means for pruning only the spatial candidate motion vectors to remove duplicate ones of the spatial candidate motion vectors without considering the temporal candidate motion vector during the pruning process;

means for selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as a selected candidate motion vector for a motion vector prediction process;

means for determining an index that identifies a location of the selected one of the candidate motion vectors in a list of the temporal candidate motion vector and the spatial candidate motion vectors that remain after pruning; and

means for signaling the index in a bitstream.

6. The apparatus of claim 5, further including means for determining whether each of the determined spatial candidate motion vectors were spatially predicted or temporally predicted,

wherein the means for pruning the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors includes means for pruning only those of the determined spatial candidate motion vectors that were determined to be spatially predicted without pruning any of those of the determined spatial candidate motion vectors that were determined to be temporally predicted, and

wherein the means for selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as the selected candidate motion vector includes means for selecting the temporal candidate motion vector, one of the spatial candidate motion vectors that was determined to be temporally predicted or one of the spatial candidate motion vectors determined to be spatially predicted remaining after pruning as the selected candidate motion vector.

7. The apparatus of claim 5, further including:

means for determining whether each of the determined spatial candidate motion vectors were spatially predicted or temporally predicted; and

means for replacing any of the spatial candidate motion vectors that were determined to be temporally predicted with a default candidate motion vector, wherein

the default candidate motion vector includes default motion vector information, wherein the default motion vector information includes a motion vector amplitude, a prediction direction identifying whether the reference frame precedes or follows the current frame temporally, and a reference index identifying the reference frame, and

wherein the means for pruning the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors includes means for pruning the spatial candidate motion vectors that include one or more of the default candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors.

8. The apparatus of claim 5, further including means for determining one or more additional spatial candidate motion vectors that are not temporally predicted and that are different from any of the temporal candidate motion vector and the spatial candidate motion vectors remaining after pruning,

wherein the means for selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning includes means for selecting the temporal candidate motion vector, one of the spatial candidate motion vectors remaining after pruning or one of the additional spatial candidate motion vectors as the selected candidate motion vector.

9. A non-transitory computer-readable medium including instructions that, when executed, cause one or more processors to execute the steps of any of claims 1 to 4.

10. A method of decoding video data, the method including:

determining spatial candidate motion vectors associated with a current portion of a current video frame, wherein the spatial candidate motion vectors include neighbor motion vectors determined for spatially neighboring portions adjacent to the current portion within the current video frame;

pruning only the spatial candidate motion vectors to remove duplicate ones of the spatial candidate motion vectors without considering a temporal candidate motion vector determined for the current portion of the current video frame during the pruning process, wherein the temporal candidate motion vector includes a motion vector determined for a portion of a reference video frame;

selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as a selected candidate motion vector for a

motion vector prediction process based on a motion vector predictor (MVP) index signaled in a bitstream; and

performing motion compensation based on the selected candidate motion vector.

11. The method of claim 10, further including:

determining a number of candidate motion vectors as the temporal candidate motion vector plus the ones of the spatial candidate motion vectors remaining after pruning;

parsing a coded MVP index from the bitstream based on the determined number of candidate motion vectors, wherein the coded MVP index includes one of a unary coded MVP index and a truncated unary coded MVP index; and

decoding the coded MVP index to determine the MVP index.

12. The method of claim 10, further including:

determining that the temporal candidate motion vector for the current portion of the current frame is unavailable; and

in response to determining that the temporal candidate motion vector is unavailable, determining default motion vector information for the temporal candidate motion vector, wherein the default motion vector information includes a motion vector amplitude, a prediction direction identifying whether the reference frame precedes or follows the current frame temporally, and a reference index identifying the reference frame.

13. The method of claim 10, further including:

determining that one of the spatial candidate motion vectors is unavailable; and

in response to determining that the one of the spatial candidate motion vectors is unavailable, determining a default candidate motion vector that includes default motion vector information for the one of the spatial candidate motion vectors based on a motion vector prediction mode, and

wherein pruning the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors includes pruning the spatial candidate motion vectors that include one or more of the default candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors, and

wherein selecting the temporal candidate emotion vector includes selecting the

temporal candidate motion vector, one of the spatial candidate motion vectors remaining after pruning as the selected candidate motion vector includes selecting the temporal candidate motion vector or one of the spatial candidate motion vectors determined to be unavailable or one of the spatial candidate motion vectors remaining after pruning based on the motion vector predictor (MVP) index signaled in the bitstream.

14. The method of claim 10, further including:

determining that one of the spatial candidate motion vectors is unavailable; and

in response to determining that the one of the spatial candidate motion vectors is unavailable, removing the one of the spatial candidate motion vectors that is determined to be unavailable from the pruning process,

wherein pruning the spatial candidate motion vectors includes pruning only those of the spatial candidate motion vectors that were determined to be available to remove the duplicate ones of the spatial candidate motion vectors without removing a temporal candidate motion vector determined for the current portion of the current video frame or the one of the spatial candidate motion vectors that is determined to be unavailable.

15. An apparatus for decoding video data, the apparatus including:

means for determining spatial candidate motion vectors associated with a current portion of a current video frame, wherein the spatial candidate motion vectors include motion vectors determined for neighboring portions of the current video frame adjacent to the current portion;

means for pruning only the spatial candidate motion vectors to remove duplicate ones of the spatial candidate motion vectors without considering a temporal candidate motion vector determined for the current portion of the current video frame during the pruning process, wherein the temporal candidate motion vector includes a motion vector determined for a portion of a reference video frame;

means for selecting one of the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning as a selected candidate motion vector for a motion vector prediction process based on a motion vector predictor (MVP) index signaled in a bitstream; and

means for performing motion compensation based on the selected candidate motion vector.

16. The apparatus of claim 15, further including:

means for determining that one of the spatial candidate motion vectors is unavailable; and

in response to determining that the one of the spatial candidate motion vectors is unavailable, means for determining a default candidate emotion vector that includes default motion vector information for the one of the spatial candidate motion vectors based on a motion vector prediction mode, and

wherein the means for pruning the spatial candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors includes means for pruning the spatial candidate motion vectors that include one or more of the default candidate motion vectors to remove the duplicate ones of the spatial candidate motion vectors, and

wherein the means for selecting includes means for selecting the temporal candidate motion vector, one of the spatial candidate motion vectors remaining after pruning as the selected candidate motion vector includes selecting the temporal candidate motion vector or one of the spatial candidate motion vectors determined to be unavailable or one of the spatial candidate motion vectors remaining after pruning based on the motion vector predictor (MVP) index signaled in the bitstream.

17. The apparatus of claim 15, further including:

means for determining that one of the spatial candidate motion vectors is unavailable; and

in response to determining that the one of the spatial candidate motion vectors is unavailable, means for removing the one of the spatial candidate motion vectors that is determined to be unavailable from the pruning process,

wherein the means for pruning only the spatial candidate motion vectors includes means for pruning only those of the spatial candidate motion vectors that were determined to be available to remove the duplicate ones of the spatial candidate motion vectors without removing a temporal candidate motion vector determined for the current portion of the current video frame or the one of the spatial candidate motion vectors that is determined to be unavailable.

18. The method of claim 10, further including determining one or more additional spatial candidate motion vectors that are not temporally predicted and that are different

from any of the temporal candidate motion vector and the spatial candidate motion vectors remaining after pruning,

wherein selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning includes selecting the temporal candidate motion vector, one of the spatial candidate motion vectors remaining after pruning or one of the additional spatial candidate motion vectors as the selected candidate motion vector.

19. The apparatus of claim 15, further including means for determining one or more additional spatial candidate motion vectors that are not temporally predicted and that are different from any of the temporal candidate motion vector and the spatial candidate motion vectors remaining after pruning,

wherein the means for selecting the temporal candidate motion vector or one of the spatial candidate motion vectors remaining after pruning includes means for selecting the temporal candidate motion vector, one of the spatial candidate motion vectors remaining after pruning or one of the additional spatial candidate motion vectors as the selected candidate motion vector.

20. A non-transitory computer-readable medium including instructions that, when executed, cause one or more processors to execute the steps of any of claims 10 to 14.