Amended Set of Claims 1 to 68

1. A method for decoding video data, the method comprising, for each prediction unit (PU) in a plurality of PUs belonging to a current coding unit (CU):

generating a candidate list for the PU such that each candidate in the candidate list that is generated based on motion information of at least one other PU is generated without using motion information of any other PU belonging to the current CU, wherein the candidate list for the PU includes one or more spatial candidates;

determining, based at least in part on motion information indicated by a selected candidate in the candidate list for the PU, motion information of the PU; and

generating, based at least in part on a reference block indicated by the motion information of the PU, a predictive video block for the PU.

2. The method of claim 1, wherein generating the candidate list for the PU comprises generating the candidate list for the PU in parallel with generating a candidate list for another one of the PUs.

3. The method of claim 1, wherein generating the candidate list comprises generating a merge candidate list shared by all of the PUs of the current CU.

4. The method of claim 3, wherein generating the merge candidate list comprises generating the merge candidate list based on motion information of PUs that are outside the current CU.

5. The method of claim 4, wherein the current CU is partitioned into the plurality of PUs according to a selected partitioning mode other than a 2Nx2N partitioning mode, the method comprises determining the motion information of each of the PUs based on motion information indicated by a selected candidate in the merge candidate list, and the merge candidate list is the same as a candidate list that would be generated if the current CU had been partitioned according to the 2Nx2N partitioning mode.

6. The method of claim 1, wherein generating the candidate list comprises:

generating a temporal candidate based on motion information of a collocated PU in a reference frame indicated by a default reference picture index; and

including the temporal candidate in the candidate list of the PU.

7. The method of claim 1, wherein generating the candidate list comprises generating each temporal candidate in the candidate list based on motion information of PUs in reference pictures indicated by reference picture indexes of PUs that cover locations outside the current CU.

8. The method of claim 7, wherein generating the candidate list comprises:

in response to determining that a reference index source location associated with the PU is within the current CU, identifying a corresponding location outside the current CU;

generating a temporal candidate based on motion information of a collocated PU in a reference picture indicated by a PU that covers the corresponding location outside the current CU; and

including the temporal candidate in the candidate list.

9. The method of claim 1, wherein the PU is a current CU and generating the candidate list comprises:

in response to determining that a reference index source PU is not available, searching for an available PU that spatially neighbors the current CU, the reference index source PU covering a reference index source location associated with the current PU;

generating a temporal candidate based on motion information of a collocated PU in a reference picture indicated by a reference picture index of the available PU; and

including the temporal candidate in the candidate list for the current CU.

10. The method of claim 1, wherein generating the candidate list comprises:

generating the one or more spatial candidates based on motion information of PUs that spatially neighbor the PU and are outside the current CU; and

including the one or more spatial candidates in the candidate list.

11. The method of claim 1,

wherein a set of spatial candidate source locations includes a first spatial candidate source location that is below and to the left of the PU, a second spatial candidate source location that is to the left of the PU, a third spatial candidate source location that is above-left of the PU, a fourth spatial candidate source location that is above the PU, and a fifth spatial candidate source location that is above-right of the PU, and

wherein generating the candidate list comprises:

substituting any of the spatial candidate source locations that are within the current CU with corresponding spatial candidate source locations outside the current CU;

generating the one or more spatial candidates based on motion information of PUs that cover the spatial candidate source locations; and

including the one or more spatial candidates in the candidate list.

12. The method of claim 1, further comprising generating a reconstructed video block for the current CU based on the predictive video blocks of the PUs.

13. The method of claim 12, further comprising identifying the reference block of the PU based on a motion vector indicated by the selected candidate in the candidate list for the PU.

14. The method of claim 12, wherein the method further comprises:

receiving a motion vector difference (MVD) for the PU;

determining, based on the MVD and a motion vector indicated by the selected candidate in the candidate list for the PU, a motion vector of the PU; and

identifying the reference block of the PU based on the motion vector of the PU.

15. A video decoding device that comprises one or more processors configured such that for each prediction unit (PU) in a plurality of PUs belonging to a current coding unit (CU), the one or more processors:

generate a candidate list for the PU such that each candidate in the candidate list that is generated based on motion information of at least one other PU is generated without using motion information of any of the PUs belonging to the current CU, wherein the candidate list for the PU includes one or more spatial candidates;

determine, based at least in part on motion information indicated by a selected candidate in the candidate list for the PU, motion information of the PU; and

generate, based at least in part on a reference block indicated by the motion information of the PU, a predictive video block for the PU.

16. The video decoding device of claim 15, wherein the one or more processors are configured to generate the candidate list for the PU in parallel with generating a candidate list for another one of the PUs.

17. The video decoding device of claim 15, wherein the one or more processors are configured to generate a merge candidate list shared by all of the PUs of the current CU.

18. The video decoding device of claim 17, wherein the one or more processors are configured to generate the merge candidate list based on motion information of PUs that are outside the current CU.

19. The video decoding device of claim 18, wherein the current CU is partitioned into the plurality of PUs according to a selected partitioning mode other than a 2Nx2N partitioning mode, the one or more processors are configured to determine the motion information of each of the PUs based on motion information indicated by a selected candidate in the merge candidate list, and the merge candidate list is the same as a candidate list that would be generated if the current CU had been partitioned according to the 2Nx2N partitioning mode.

20. The video decoding device of claim 15, wherein the one or more processors are configured to:

generate a temporal candidate based on motion information of a collocated PU in a reference frame indicated by a default reference picture index; and

include the temporal candidate in the candidate list of the PU.

21. The video decoding device of claim 15, wherein the one or more processors are configured to generate each temporal candidate in the candidate list based on motion information of PUs in reference pictures indicated by reference picture indexes of PUs that cover locations outside the current CU.

22. The video decoding device of claim 21, wherein the one or more processors are configured to:

identify, in response to determining that a reference index source location associated with the PU is within the current CU, a corresponding location outside the current CU;

generate a temporal candidate based on motion information of a collocated PU in a reference picture indicated by a PU that covers the corresponding location outside the current CU; and

include the temporal candidate in the candidate list.

23. The video decoding device of claim 15, wherein the CU is a current CU and the one or more processors are configured to:

search, in response to determining that a reference index source PU is not available, for an available PU that spatially neighbors the current CU, the reference index source PU covering a reference index source location associated with the current PU;

generate a temporal candidate based on motion information of a collocated PU in a reference picture indicated by a reference picture index of the available PU; and

include the temporal candidate in the candidate list for the current CU.

24. The video decoding device of claim 15, wherein the one or more processors are configured to:

generate the one or more spatial candidates based on motion information of PUs that spatially neighbor the PU and are outside the current CU; and

include the one or more spatial candidates in the candidate list.

25. The video decoding device of claim 15,

wherein a set of spatial candidate source locations includes a first spatial candidate source location that is below and to the left of the PU, a second spatial candidate source location that is to the left of the PU, a third spatial candidate source location that is above-left of the PU, a fourth spatial candidate source location that is above the PU, and a fifth spatial candidate source location that is above-right of the PU, and

wherein the one or more processors are configured to:

substitute any of the spatial candidate source locations that are within the current CU with corresponding spatial candidate source locations outside the current CU;

generate the one or more spatial candidates based on motion information of PUs that cover the spatial candidate source locations; and

include the one or more spatial candidates in the candidate list.

26. The video decoding device of claim 15, wherein the video coding device is configured to generate a reconstructed video block for the current CU based on the predictive video blocks of the PUs.

27. The video decoding device of claim 26, wherein the one or more processors are configured to identify the reference block of the PU based on a motion vector indicated by the selected candidate in the candidate list for the PU.

28. The video decoding device of claim 26, wherein the one or more processors are further configured to:

receive a motion vector difference (MVD) for the PU;

calculate, based on the MVD and a motion vector indicated by the selected candidate in the candidate list for the PU, a motion vector of the PU; and

identify the reference block of the PU based on the motion vector of the PU.

29. The video decoding device of claim 15, wherein the video coding device is a mobile computing device.

30. A video decoding device that comprises:

means for generating, for each prediction unit (PU) in a plurality of PUs belonging to a current coding unit (CU), a candidate list for the PU such that each candidate in the candidate list that is generated based on motion information of at least one other PU is generated without using motion information of any of the PUs belonging to the current CU, wherein the candidate list for the PU includes one or more spatial candidates;

means for determining, based at least in part on motion information indicated by a selected candidate in the candidate list for the PU, motion information of the PU; and

means for generating, for each PU belonging to the current CU and based at least in part on a reference block indicated by the motion information of the PU, a predictive video block for the PU.

31. The video decoding device of claim 30, comprising means for generating the candidate lists for two or more of the PUs in parallel.

32. The video decoding device of claim 30, comprising means for generating a merge candidate list shared by all of the PUs of the current CU.

33. A computer program product that comprises one or more computer readable storage media that store instructions that, when executed, configure one or more processors to:

generate, for each prediction unit (PU) in a plurality of PUs belonging to a current coding unit (CU), a candidate list for the PU such that each candidate in the candidate list that is generated based on motion information of at least one other PU is generated without using motion information of any of the PUs belonging to the current CU, wherein the candidate list for the PU includes one or more spatial candidates;

determine, based at least in part on motion information indicated by a selected candidate in the candidate list for the PU, motion information of the PU; and

generate, for each PU belonging to the current CU and based at least in part on a reference block indicated by the motion information of the PU, a predictive video block for the PU.

34. The computer program product of claim 33, wherein the instructions configure the one or more processors to generate the candidate lists for two or more of the PUs in parallel.

35. The computer program product of claim 33, wherein the instructions configure the one or more processors to generate a merge candidate list shared by all of the PUs of the current CU.

36. A method for encoding video data, the method comprising, for each prediction unit (PU) in a plurality of PUs belonging to a current coding unit (CU):

generating a candidate list for the PU such that each candidate in the candidate list that is generated based on motion information of at least one other PU is generated without using motion information of any other PU belonging to the current CU, wherein the candidate list for the PU includes one or more spatial candidates;

selecting a candidate in the candidate list for the PU; and

generating, based at least in part on a reference block indicated by motion information of the selected candidate for the PU, a predictive video block for the PU.

37. The method of claim 36, wherein generating the candidate list for the PU comprises generating the candidate list for the PU in parallel with generating a candidate list for another one of the PUs.

38. The method of claim 36, wherein generating the candidate list comprises generating a merge candidate list shared by all of the PUs of the current CU.

39. The method of claim 38, wherein generating the merge candidate list comprises generating the merge candidate list based on motion information of PUs that are outside the current CU.

40. The method of claim 39, wherein the current CU is partitioned into the plurality of PUs according to a selected partitioning mode other than a 2Nx2N partitioning mode, the motion information of each of the PUs is based on motion information indicated by a selected candidate in the merge candidate list, and the merge candidate list is the same as a candidate list that would be generated if the current CU had been partitioned according to the 2Nx2N partitioning mode.

41. The method of claim 36, wherein generating the candidate list comprises:

generating a temporal candidate based on motion information of a collocated PU in a reference frame indicated by a default reference picture index; and

including the temporal candidate in the candidate list of the PU.

42. The method of claim 36, wherein generating the candidate list comprises generating each temporal candidate in the candidate list based on motion information of PUs in reference pictures indicated by reference picture indexes of PUs that cover locations outside the current CU.

43. The method of claim 42, wherein generating the candidate list comprises:

in response to determining that a reference index source location associated with the PU is within the current CU, identifying a corresponding location outside the current CU;

generating a temporal candidate based on motion information of a collocated PU in a reference picture indicated by a PU that covers the corresponding location outside the current CU; and

including the temporal candidate in the candidate list.

44. The method of claim 36, wherein generating the candidate list comprises:

in response to determining that a reference index source PU is not available, searching for an available PU that spatially neighbors the current CU, the reference index source PU being a PU that covers a reference index source location associated with the PU;

generating a temporal candidate based on motion information of a collocated PU in a reference picture indicated by a reference picture index of the available PU; and

including the temporal candidate in the candidate list.

45. The method of claim 36, wherein generating the candidate list comprises:

generating the one or more spatial candidates based on motion information of PUs that spatially neighbor the PU and are outside the current CU; and

including the one or more spatial candidates in the candidate list.

46. The method of claim 36,

wherein a set of spatial candidate source locations includes a first spatial candidate source location that is below and to the left of the PU, a second spatial candidate source location that is to the left of the PU, a third spatial candidate source location that is above-left of the PU, a fourth spatial candidate source location that is above the PU, and a fifth spatial candidate source location that is above-right of the PU, and

wherein generating the candidate list comprises:

substituting any of the spatial candidate source locations that are within the current CU with corresponding spatial candidate source locations outside the current CU;

generating the one or more spatial candidates based on motion information of PUs that cover the spatial candidate source locations; and

including the one or more spatial candidates in the candidate list.

47. The method of claim 36, further comprising outputting candidate indexes that indicate a position, in the candidate list, of the selected candidate.

48. The method of claim 36, wherein the method further comprises:

generating a motion vector for the PU; and

outputting a motion vector difference (MVD) for the PU, the MVD for the PU indicating a difference between the motion vector for the PU and a motion vector indicated by the selected candidate for the PU.

49. A video encoding device that comprises one or more processors configured to, for each prediction unit (PU) in a plurality of PUs belonging to a current coding unit (CU):

generate a candidate list for the PU such that each candidate in the candidate list that is generated based on motion information of at least one other PU is generated without using motion information of any of the PUs belonging to the current CU, wherein the candidate list for the PU includes one or more spatial candidates;

select a candidate in the candidate list for the PU; and

generate, based at least in part on a reference block indicated by motion information of the selected candidate for the PU, a predictive video block for the PU.

50. The video encoding device of claim 49, wherein the one or more processors are configured to generate the candidate lists for two or more of the PUs in parallel.

51. The video encoding device of claim 49, wherein the one or more processors are configured to generate a merge candidate list shared by all of the PUs of the current CU.

52. The video encoding device of claim 51, wherein the one or more processors are configured to generate the merge candidate list based on motion information of PUs that are outside the current CU.

53. The video encoding device of claim 52, wherein the current CU is partitioned into the plurality of PUs according to a selected partitioning mode other than a 2Nx2N partitioning mode, and the motion information of each of the PUs is determinable based on motion information indicated by a selected candidate in the merge candidate list, wherein the merge candidate list is the same as a candidate list that would be generated if the current CU had been partitioned according to the 2Nx2N partitioning mode.

54. The video encoding device of claim 49, wherein the one or more processors are configured to:

generate a temporal candidate based on motion information of a collocated PU in a reference frame indicated by a default reference picture index; and

include the temporal candidate in the candidate list of a current PU, the current PU being one of the PUs belonging to the current CU.

55. The video encoding device of claim 49, wherein the one or more processors are configured to generate each temporal candidate in the candidate lists based on motion information of PUs in reference pictures indicated by reference picture indexes of PUs that cover locations outside the current CU.

56. The video encoding device of claim 55, wherein the one or more processors are configured to:

identify, in response to determining that a reference index source location associated with a current PU is within the current CU, a corresponding location outside the current CU, the current PU being one of the PUs belonging to the current CU;

generate a temporal candidate based on motion information of a collocated PU in a reference picture indicated by a PU that covers the corresponding location outside the current CU; and

include the temporal candidate in the candidate list for the current CU.

57. The video encoding device of claim 49, wherein the one or more processors are configured to:

search, in response to determining that a reference index source PU is not available, for an available PU that spatially neighbors the current CU, the reference index source PU being a PU that covers a reference index source location associated with a current PU, the current PU being one of the PUs belonging to the current CU;

generate a temporal candidate based on motion information of a collocated PU in a reference picture indicated by a reference picture index of the available PU; and

include the temporal candidate in the candidate list for the current CU.

58. The video encoding device of claim 49, wherein the one or more processors are configured to:

generate the one or more spatial candidates based on motion information of PUs that spatially neighbor a current PU and are outside the current CU, the current PU being one of the PUs belonging to the current CU; and

include the one or more spatial candidates in the candidate list for the current PU.

tion: 28.10.2013 22:13:49 - 28.10.2013 22:20:11. This page 18 of
Received at the EPO on Oct 28, 2013 22:20:11. Page 18 of 37

59. The video encoding device of claim 49,

wherein a set of spatial candidate source locations includes a first spatial candidate source location that is below and to the left of the PU, a second spatial candidate source location that is to the left of the PU, a third spatial candidate source location that is above-left of the PU, a fourth spatial candidate source location that is above the PU, and a fifth spatial candidate source location that is above-right of the PU, and

wherein the one or more processors are configured to:

substitute any of the spatial candidate source locations that are within the current CU with corresponding spatial candidate source locations outside the current CU;

generate the one or more spatial candidates based on motion information of PUs that cover the spatial candidate source locations; and

include the one or more spatial candidates in the candidate list for the PU.

60. The video encoding device of claim 49, wherein the one or more processors are configured to output candidate indexes that indicate a position, in the candidate list, of the selected candidate.

61. The video encoding device of claim 49, wherein the one or more processors are further configured to:

generate a motion vector for the PU; and

output a motion vector difference (MVD) for the PU, the MVD for the PU indicating a difference between the motion vector for the PU and a motion vector indicated by the selected candidate for the PU.

62. The video encoding device of claim 49, wherein the video coding device is a mobile computing device.

63. A video encoding device that comprises:

means for generating, for each prediction unit (PU) in a plurality of PUs belonging to a current coding unit (CU), a candidate list for the PU such that each candidate in the candidate list that is generated based on motion information of at least one other PU is generated without using motion information of any of the PUs belonging to the current CU, wherein the candidate list for the PU includes one or more spatial candidates;

means for selecting, for each PU belonging to the current CU, a candidate in the candidate list for the PU; and

means for generating, for each PU belonging to the current CU, and based at least in part on a reference block indicated by motion information of the selected candidate for the PU, a predictive video block for the PU.

64. The video encoding device of claim 63, comprising means for generating the candidate lists for two or more of the PUs in parallel.

65. The video encoding device of claim 63, comprising means for generating a merge candidate list shared by all of the PUs of the current CU.

66. A computer program product that comprises one or more computer readable storage media that store instructions that, when executed, configure one or more processors to:

generate, for each prediction unit (PU) in a plurality of PUs belonging to a current coding unit (CU), a candidate list for the PU such that each candidate in the candidate list that is generated based on motion information of at least one other PU is generated without using motion information of any of the PUs belonging to the current CU, wherein the candidate list for the PU includes one or more spatial candidates;

select, for each PU belonging to the current CU, a candidate in the candidate list for the PU; and

generate, for each PU belonging to the current CU, and based at least in part on a reference block indicated by motion information of the selected candidate for the PU, a predictive video block for the PU.

67. The computer program product of claim 66, wherein the instructions configure the one or more processors to generate the candidate lists for two or more of the PUs in parallel.

68. The computer program product of claim 66, wherein the instructions configure the one or more processors to generate a merge candidate list shared by all of the PUs of the current CU.

CLAIMS

1. An invention not claimed in any divisional application.