

WHAT IS CLAIMED IS:

1. A method of encoding video data, the method comprising:
determining an intra-mode for predicting a current block of video data;
determining most probable modes (MPMs) for predicting the current block of video data;
determining an index for each of the MPMs based on an order in which the intra-mode for predicting the current block is compared to the MPMs, and
signaling, when one of the MPMs for predicting the current block matches the intra-mode for predicting the current block, the index of the matching MPM.
2. The method of claim 1, further comprising, when the intra-mode of the current block does not match one of the MPMs, setting an MPM flag to zero and signaling the intra-mode of the current block based on a codeword mapping procedure.
3. The method of claim 2, wherein the codeword mapping procedure comprises eliminating the MPMs from the remaining intra-modes.
4. The method of claim 2, where the codeword mapping procedure comprises sorting the MPMs in ascending order.
5. The method of claim 1, further comprising signaling, prior to the index of the MPM, an MPM flag indicating that the index of the MPM has been signaled.
6. The method of claim 1, wherein the MPMs are associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein determining the index for each MPM comprises comparing an intra-mode associated with the left-neighboring video block prior to comparing the above-neighboring block.
7. The method of claim 1, wherein the MPMs are associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein determining the index for each MPM comprises

comparing an intra-mode associated with the above-neighboring block prior to comparing an intra-mode associated with the left-neighboring video block.

8. The method of claim 1, wherein the MPMs comprise at least a first MPM having a first initial index and a second MPM having a second initial index that is less than the first initial index, the first and second initial indices being specified by a video coding standard, and wherein determining the index for each of the MPMs comprises comparing the first MPM to the intra-mode of the current block prior to comparing the second MPM to the intra-mode of the current block, such that an index of the first MPM is less than an index for the second MPM.

9. The method of claim 1, wherein determining the index for each of the MPMs comprises comparing the intra-mode for predicting the current block to the MPMs in an order based on statistics associated with a likelihood of an MPM matching the intra-mode for predicting the current block.

10. The method of claim 1, further comprising signaling an order in which the MPMs are compared to the intra-mode for predicting the current block.

11. The method of claim 1, wherein the MPMs comprise more than two MPMs associated with more than two reference blocks.

12. The method of claim 1, wherein signaling the index comprises encoding an indication of the index in a bitstream.

13. The method of claim 1, wherein determining MPMs for predicting the current block of video data further comprises:

identifying one or more blocks that cannot be used for reference during intra-coding; and

assigning the one or more blocks a default intra-mode.

14. The method of claim 13, wherein the default mode is planar mode.

15. The method of claim 13, wherein the default mode is DC mode.

16. An apparatus for encoding video data comprising one or more processors configured to:
- determine an intra-mode for predicting a current block of video data;
 - determine MPMs for predicting the current block of video data;
 - determine an index for each of the MPMs based on an order in which the intra-mode for predicting the current block is compared to the MPMs; and
 - signal, when one of the MPMs for predicting the current block matches the intra-mode for predicting the current block, the index of the matching MPM.
17. The apparatus of claim 16, the one or more processors further configured to set an MPM flag to zero and signaling the intra-mode of the current block based on a codeword mapping procedure when the intra-mode of the current block does not match one of the MPMs.
18. The apparatus of claim 17, wherein to perform the codeword mapping procedure, the one or more processors are configured to eliminate the MPMs from the remaining intra-modes.
19. The apparatus of claim 17, wherein to perform the codeword mapping procedure, the one or more processors are configured to sort the MPMs in ascending order.
20. The apparatus of claim 16, the one or more processors further configured to signal an MPM flag prior to the index of the MPM to indicate that the index of the MPM has been signaled.
21. The apparatus of claim 16, wherein the MPMs are associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein the one or more processors are configured to compare an intra-mode associated with the left-neighboring video block prior to comparing the above-neighboring block.

22. The apparatus of claim 16, wherein the MPMS are associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein the one or more processors are configured to compare an intra-mode associated with the above-neighboring block prior to comparing an intra-mode associated with the left-neighboring video block.
23. The apparatus of claim 16, wherein the MPMS comprise at least a first MPM having a first initial index and a second MPM having a second initial index that is less than the first initial index, the first and second initial indices being specified by a video coding standard, and wherein to determine the index for each of the MPMS, the one or more processors are configured to compare the first MPM to the intra-mode of the current block prior to comparing the second MPM to the intra-mode of the current block, such that an index of the first MPM is less than an index for the second MPM.
24. The apparatus of claim 16, wherein to determine the index for each of the MPMS, the one or more processors are configured to compare the intra-mode for predicting the current block to the MPMS in an order based on statistics associated with a likelihood of an MPM matching the intra-mode for predicting the current block.
25. The apparatus of claim 16, the one or more processors further configured to signal an order in which the MPMS are compared to the intra-mode for predicting the current block.
26. The apparatus of claim 16, wherein the MPMS comprise more than two MPMS associated with more than two reference blocks.
27. The apparatus of claim 16, wherein to signal the index, the one or more processors are configured to encode an indication of the index in a bitstream.
28. The apparatus of claim 16, wherein to determine MPMS for predicting the current block of video data, the one or more processors are further configured to:
- identifying one or more blocks that cannot be used for reference during intra-coding; and
 - assigning the one or more blocks a default intra-mode.

29. The apparatus of claim 28, wherein the default mode is planar mode.
30. The apparatus of claim 28, wherein the default mode is DC mode.
31. The apparatus of claim 16, wherein the apparatus comprises a video encoder, and wherein the one or more processors are further configured to:
- predict the current block using the determined intra-mode to generate a reference video block;
 - determine a residual block comprising a difference between the reference block and the current block; and
 - signal the residual block in a bitstream.
32. A computer-readable storage medium comprising instructions that, when executed, cause one or more processors to:
- determine an intra-mode for predicting a current block of video data;
 - determine MPMs for predicting the current block of video data;
 - determine an index for each of the MPMs based on an order in which the intra-mode for predicting the current block is compared to the MPMs; and
 - signal, when one of the MPMs for predicting the current block matches the intra-mode for predicting the current block, the index of the matching MPM.
33. The computer-readable storage medium of claim 32, further comprising instructions that, when executed, cause the one or more processors to set an MPM flag to zero and signaling the intra-mode of the current block based on a codeword mapping procedure, when the intra-mode of the current block does not match one of the MPMs.
34. The computer-readable storage medium of claim 33, wherein the codeword mapping procedure comprises eliminating the MPMs from the remaining intra-modes.
35. The computer-readable storage medium of claim 33, where the codeword mapping procedure comprises sorting the MPMs in ascending order.

36. The computer-readable storage medium of claim 32, further comprising instructions that, when executed, cause the one or more processors to signal an MPM flag prior to the index of the MPM to indicate that the index of the MPM has been signaled.
37. The computer-readable storage medium of claim 32, wherein the MPMs are associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and further comprising instructions that cause the one or more processors to determine the index for each MPM by comparing an intra-mode associated with the left-neighboring video block prior to comparing the above-neighboring block.
38. The computer-readable storage medium of claim 32, wherein the MPMs are associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and further comprising instructions that cause the one or more processors to determine the index for each MPM by comparing an intra-mode associated with the above-neighboring block prior to comparing an intra-mode associated with the left-neighboring video block.
39. An apparatus for encoding video data comprising:
means for determining an intra-mode for predicting a current block of video data;
means for determining MPMs for predicting the current block of video data;
means for determining an index for each of the MPMs based on an order in which the intra-mode for predicting the current block is compared to the MPMs; and
means for signaling, when one of the MPMs for predicting the current block matches the intra-mode for predicting the current block, the index of the matching MPM.
40. A method of decoding video data, the method comprising:
generating, when an intra-mode for a current block comprises an MPM, a list of MPMs for a current block of video data, wherein the list of MPMs is arranged in an order in which the intra-mode for the current block of

video data is compared to one or more intra-modes associated with one or more reference blocks of video data;
determining an MPM index that identifies the intra-mode for the current block in the list of MPMs;
identifying the intra-mode for the current block using the MPM index; and
decoding the current block with the identified intra-mode for the current block.

41. The method of claim 40, further comprising, when the intra-mode of the current block does not match one of the MPMs, determining an intra-mode for the current block based on a codeword mapping procedure that maps a set of remaining intra-modes to indices.

42. The method of claim 41, wherein performing the codeword mapping procedure comprises eliminating the MPMs from the set of remaining intra-modes.

43. The method of claim 41, wherein performing the codeword mapping procedure comprises sorting the MPMs in ascending order.

44. The method of claim 40, wherein the MPMs are associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein generating the list comprises comparing an intra-mode associated with the left-neighboring video block prior to comparing the above-neighboring block such that an intra-mode associated with the left-neighboring video block is listed prior to an intra-mode associated with the above-neighboring video block in the list.

45. The method of claim 40, wherein the MPMs are associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein generating the list comprises comparing an intra-mode associated with the above-neighboring block prior to comparing the left-neighboring video block such that an intra-mode associated with the above-neighboring video block is listed prior to an intra-mode associated with the left-neighboring video block in the list.

46. The method of claim 40, wherein the list of MPMs comprise at least a first MPM having a first initial index and a second MPM having a second initial index that is less than the first initial index, the first and second initial indices being specified by a video coding standard, and wherein generating the list comprises adding the first MPM to the list prior to adding the second MPM to the list, such that an intra-mode associated with the left-neighboring video block is listed prior to an intra-mode associated with the above-neighboring video block in the list..

47. The method of claim 40, further comprising ordering the list based on statistics associated with a likelihood of an MPM matching the intra-mode for predicting the current block.

48. The method of claim 40, determining, from an encoded bitstream, a comparison order for generating the list.

49. An apparatus comprising one or more processors configured to, when an intra-mode for a current block comprises an MPM:

generate a list of MPMs for a current block of video data,
wherein the list of MPMs is arranged in an order in which the intra-mode
for the current block of video data is compared to one or more
intra-modes associated with one or more reference blocks of
video data;
determine an MPM index that identifies the intra-mode for the current
block in the list of MPMs;
identify the intra-mode for the current block using the MPM index; and
decode the current block with the identified intra-mode for the current
block.

50. The apparatus of claim 49, wherein the one or more processors are further configured to, when the intra-mode of the current block does not match one of the MPMs, determine an intra-mode for the current block based on a codeword mapping procedure that maps a set of remaining intra-modes to indices.

51. The apparatus of claim 50, wherein to perform the codeword mapping procedure, the one or more processors are configured to eliminate the MPMs from the set of remaining intra-modes.
52. The apparatus of claim 50, wherein to perform the codeword mapping procedure, the one or more processors are configured to sorting the MPMs in ascending order.
53. The apparatus of claim 49, wherein the MPMs are associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein to generate the list, the one or more processors are configured to compare an intra-mode associated with the left-neighboring video block prior to comparing the above-neighboring block such that an intra-mode associated with the left-neighboring video block is listed prior to an intra-mode associated with the above-neighboring video block in the list. .
54. The apparatus of claim 49, wherein the MPMs are associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein to generate the list, the one or more processors are configured to compare an intra-mode associated with the above-neighboring block prior to comparing the left-neighboring video block such that an intra-mode associated with the above-neighboring video block is listed prior to an intra-mode associated with the left-neighboring video block in the list..
55. The apparatus of claim 49, wherein the list of MPMs comprise at least a first MPM having a first initial index and a second MPM having a second initial index that is less than the first initial index, the first and second initial indices being specified by a video coding standard, and wherein to generate the list, the one or more processors are configured to add the first MPM to the list prior to adding the second MPM to the list, such that an intra-mode associated with the left-neighboring video block is listed prior to an intra-mode associated with the above-neighboring video block in the list .

56. The apparatus of claim 49, wherein the one or more processors are further configured to order the list based on statistics associated with a likelihood of an MPM matching the intra-mode for predicting the current block.
57. The apparatus of claim 49, wherein the one or more processors are further configured to determine, from an encoded bitstream, a comparison order for generating the list.
58. The apparatus of claim 49, wherein the apparatus comprises a video decoder, and wherein to decode the current block, the one or more processors further configured to:
- obtain, from an encoded bitstream, a residual video block associated with the current block;
 - generate a reference block by predicting the current block using the identified intra-mode for the current block; and
 - determine values for the current block from a combination of the reference block and a received residual video block.
59. A computer-readable storage medium comprising instructions that, when executed, cause one or more processors to:
- generate, when an intra-mode for a current block comprises an MPM, a list of MPMs for a current block of video data, wherein the list of MPMs is arranged in an order in which the intra-mode for the current block of video data is compared to one or more intra-modes associated with one or more reference blocks of video data;
 - determine an MPM index that identifies the intra-mode for the current block in the list of MPMs;
 - identify the intra-mode for the current block using the MPM index; and
 - decode the current block with the identified intra-mode for the current block.
60. The computer-readable storage medium of claim 59, further comprising, when the intra-mode of the current block does not match one of the MPMs, instructions that cause the one or more processors to determine an intra-mode for the current block based on a codeword mapping procedure that maps a set of remaining intra-modes to indices.

61. The computer-readable storage medium of claim 59, wherein the MPMs are associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein to generate the list, the instructions cause the one or more processors to compare an intra-mode associated with the left-neighboring video block prior to comparing the above-neighboring block such that an intra-mode associated with the left-neighboring video block is listed prior to an intra-mode associated with the above-neighboring video block in the list.
62. The computer-readable storage medium of claim 59, wherein the MPMs are associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein to generate the list the instructions cause the one or processors to compare an intra-mode associated with the above-neighboring block prior to comparing the left-neighboring video block such that an intra-mode associated with the above-neighboring video block is listed prior to an intra-mode associated with the left-neighboring video block in the list.
63. An apparatus for decoding video data, the apparatus comprising:
- means for generating, when an intra-mode for a current block comprises an MPM, a list of MPMs for a current block of video data, wherein the list of MPMs is arranged in an order in which the intra-mode for the current block of video data is compared to one or more intra-modes associated with one or more reference blocks of video data;
 - means for determining an MPM index that identifies the intra-mode for the current block in the list of MPMs;
 - means for identifying the intra-mode for the current block using the MPM index;
 - and
 - means for decoding the current block with the identified intra-mode for the current block.

CLAIMS

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

determining an intra-mode for predicting a current block of video data;

determining most probable modes (MPMs) for predicting the current block of video data wherein the MPMs are intra-modes associated with respective neighboring blocks of video data encoded prior to the current block;

generating a list of the MPMs based on a position of the respective neighboring blocks of video data associated with the MPMs;

assigning an index to each of the MPMs in the list without resorting the MPMs in the list based on a mode index of the MPMs;

and

encoding intra-mode data of the current block, comprising encoding, when one of the MPMs matches the intra-mode for predicting the current block, data that represents the index of the matching MPM in the list in an encoded bitstream.

2. The method of claim 1, wherein encoding the intra-mode data of the current block comprises, when one of the MPMs does not match the intra-mode for predicting the current block:

encoding an MPM flag that indicates that the intra-mode for predicting the current block is not an MPM;

generating a modified list of intra-modes; and

encoding data that represents an index of the intra-mode of the current block in the modified list.

3. The method of claim 2, wherein generating the modified list comprises eliminating the MPMs from the modified list of intra-modes.

4. The method of claim 2, wherein generating the modified list comprises sorting the modified list of intra-modes in ascending order according to a mode value of the intra-modes.

5. The method of claim 1, further comprising encoding, prior to the index of the matching MPM, an MPM flag that indicates that the data that represents the index of the matching MPM is present in the encoded bitstream.

6. The method of claim 1, wherein determining the MPMs comprises determining intra-modes associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein generating the list of the MPMs comprises assigning an index to the intra-mode associated with the left-neighboring video block that is less than an index of the intra-mode associated with the above-neighboring block.

7. The method of claim 1, wherein determining the MPMs comprises determining intra-modes associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein generating the list of the MPMs comprises assigning an index to the intra-mode associated with the above-neighboring block that is less than an index of the intra-mode associated with an intra-mode associated with the left-neighboring video block.

8. The method of claim 1, wherein assigning an index to each of the MPMs comprises assigning indices to intra-modes of neighboring blocks of the current block based on an order in which the neighboring blocks are encoded.

9. The method of claim 1, wherein assigning an index to each of the MPMs comprises assigning indices to the MPMs based on statistics associated with a likelihood of an MPM matching the intra-mode for predicting the current block.

10. The method of claim 1, further comprising encoding data that represents an order in which indices are assigned to the MPMs.

11. The method of claim 1, wherein the MPMs comprise more than two MPMs associated with more than two reference blocks.

12. The method of claim 1, wherein determining MPMs for predicting the current block of video data further comprises:
identifying one or more blocks that cannot be used for reference during intra-coding; and
assigning the one or more blocks a default intra-mode.

13. The method of claim 12, wherein the default mode is planar intra-mode.

14. The method of claim 12, wherein the default mode is DC intra-mode.

15. An apparatus for encoding video data, the apparatus comprising;

a memory configured to store a current block of video data
and

one or more processors configured to:

determine an intra-mode for predicting the current block of video data;

determine most probable modes (MPMs) for predicting the current block of video data, wherein the MPMs are intra-modes associated with respective neighboring blocks of video data encoded prior to the current block;

generate a list of the MPMs based on a position of the respective neighboring blocks of video data associated with the MPMs;

assign an index to each of the MPMs in the list without resorting the MPMs in the list based on a mode index of the MPMs;

encode intra-mode data of the current block, comprising encoding, when one of the MPMs matches the intra-mode for predicting the current block, data that represents the index of the matching MPM in the list in an encoded bitstream.

16. The apparatus of claim **15**, wherein to encode the intra-mode data of the current block, when one of the MPMs does not match the intra-mode for predicting the current block, the one or more processors further configured to:

encode an MPM flag that indicates that the intra-mode for predicting the current block is not an MPM;

generate a modified list of intra-modes; and

encode data that represents an index of the intra-mode of the current block in the modified list.

17. The apparatus of claim **16**, wherein to generate the modified list, the one or more processors are configured to eliminate the MPMs from the modified list of intra-modes.

18. The apparatus of claim **16**, wherein to generate the modified list, the one or more processors are configured to sort the modified list of intra-modes in ascending order according to a mode value of the intra-modes.

19. The apparatus of claim **15**, the one or more processors further configured to encode, prior to the index of the matching MPM, an MPM flag that indicates that the data that represents the index of the matching MPM is present in the encoded bitstream.

20. The apparatus of claim **15**, wherein to determine the MPMs, the one or more processors are configured to determine intra-modes associated with a left-neighboring video block of the current block and an above-neighboring video

block of the current block, and wherein to assign an index to each of the MPMs, the one or more processors are configured to assign an index to the intra-mode associated with the left-neighboring video block that is less than an index of the intra-mode associated with the above-neighboring block.

21. The apparatus of claim **15**, wherein to determine the MPMs, the one or more processors are configured to determine intra-modes associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein to assign an index to each of the MPMs, the one or more processors are configured to assign an index to the intra-mode associated with the above-neighboring video block that is less than an index of the intra-mode associated with the left-neighboring block.

22. The apparatus of claim **15**, wherein to assign an index to each of the MPMs, the one or more processors are configured to assign indices to intra-modes of neighboring blocks of the current block based on an order in which the neighboring blocks are encoded.

23. The apparatus of claim **15**, wherein, to assign an index to each of the MPMs, the one or more processors are configured to assign indices to the MPMs based on statistics associated with a likelihood of an MPM matching the intra-mode for predicting the current block.

24. The apparatus of claim **15**, wherein the one or more processors are further configured to encode data that represents an order in which indices are assigned to the MPMs.

25. The apparatus of claim **15**, wherein the MPMs comprise more than two MPMs associated with more than two reference blocks.

26. The apparatus of claim **15**, wherein to determine MPMs for predicting the current block of video data, the one or more processors are further configured to:

identify one or more blocks that cannot be used for reference during intra-coding; and
 assign the one or more blocks a default intra-mode.

27. The apparatus of claim **26**, wherein the default intra-mode is planar mode.

28. The apparatus of claim **26**, wherein the default mode is DC intra-mode.

29. The apparatus of claim **15**, further comprising a camera configured to capture the current block, wherein the apparatus comprises a video encoder, and wherein the one or more processors are further configured to:

- predict the current block using the determined intra-mode to generate a reference video block;
- determine a residual block comprising a difference between the reference block and the current block; and
- encode data that represents the residual block in the encoded bitstream.

30. A non-transitory computer-readable storage medium having stored thereon instructions that, when executed, cause one or more processors to:

- determine an intra-mode for predicting a current block of video data;
- determine most probable modes (MPMs) for predicting the current block of video data, wherein the MPMs are intra-modes associated with respective neighboring blocks of video data encoded prior to the current block;
- generate a list of the MPMs based on a position of the respective neighboring blocks of video data associated with the MPMs;
- assign an index to each of the MPMs in the list without resorting the MPMs in the list based on a mode index of the MPMs;
- and
- encode intra-mode data of the current block, comprising

encoding, when one of the MPMs matches the intra-mode for predicting the current block, data that represents the index of the matching MPM in the list in an encoded bitstream.

31. The non-transitory computer-readable storage medium of claim **30**, wherein to encode the intra-mode data of the current block, when one of the MPMs does not match the intra-mode for predicting the current block, the instructions cause the one or more processors to:

- encode an MPM flag that indicates that the intra-mode for predicting the current block is not an MPM;
- generate a modified list of intra-modes; and
- encode data that represents an index of the intra-mode of the current block in the modified list.

32. The non-transitory computer-readable storage medium of claim **31**, wherein to generate the modified list, the instructions cause the one or more processors to eliminate the MPMs from the modified list of intra-modes.

33. The non-transitory computer-readable storage medium of claim **31**, wherein to generate the modified list, the instructions cause the one or more processors to sort the modified list of intra-modes in ascending order according to a mode value of the intra-modes.

34. The non-transitory computer-readable storage medium of claim **30**, further comprising instructions that, when executed, cause the one or more processors to encode, prior to the index of the matching MPM, an MPM flag that indicates that the data that represents the index of the matching MPM is present in the encoded bitstream.

35. The non-transitory computer-readable storage medium of claim **30**, wherein, to determine the MPMs, the instructions cause the one or more processors to determine intra-modes associated with a left-neighboring video block of the current

block and an above-neighboring video block of the current block, and wherein to assign an index to each of the MPMs, the instructions cause the one or more processors to assign an index to the intra-mode associated with the left-neighboring block that is less than an index of the intra-mode associated with the above-neighboring video block.

36. The non-transitory computer-readable storage medium of claim 30, wherein, to determine the MPMs, the instructions cause the one or more processors to determine intra-modes associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein to assign an index to each of the MPMs, the instructions cause the one or more processors to assign an index to the intra-mode associated with the above-neighboring block that is less than an index of the intra-mode associated with the left-neighboring video block.

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

- means for determining an intra-mode for predicting a current block of video data;
- means for determining most probable modes (MPMs) for predicting the current block of video data, wherein the MPMs are intra-modes associated with respective neighboring blocks of video data encoded prior to the current block;
- means for generating a list of the MPMs based on a position of the respective neighboring blocks of video data associated with the MPMs;
- means for assigning an index to each of the MPMs in the list without resorting the MPMs in the list based on a mode index of the MPMs; and
- means for encoding, when one of the MPMs matches the intra-mode for predicting the current block, data that represents the index of the matching MPM in the list in an encoded bitstream.

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

- determining most probable modes (MPMs) for predicting a current block of video data, wherein the MPMs are intra-modes associated with respective neighboring blocks of video data decoded prior to the current block;
- generating a list of the determined MPMs for predicting the current block of video data based on a position of the respective neighboring blocks of video data associated with the MPMs;
- assigning an index to each of the MPMs in the list without resorting the MPMs in the list based on a mode index of the MPMs;
- decoding intra-mode data of the current block, comprising decoding, when one of the MPMs matches an intra-mode for the current block, data that represents the index of the matching MPM in the list from an encoded bit-stream;
- identifying the intra-mode for predicting the current block using the index; and
- decoding the current block with the identified intra-mode for the current block.

39. The method of claim **38**, wherein, decoding the intra-mode data of the current block comprises, when one of the MPMs does not match the intra-mode for predicting the current block:

- decoding an MPM flag that indicates that the intra-mode for predicting the current block is not an MPM;
- generating a modified list of intra-modes; and
- decoding data that represents an index of the intra-mode of the current block in the modified list.

40. The method of claim **39**, wherein generating the modified list comprises eliminating the MPMs from the modified list of intra-modes.

41. The method of claim **39**, wherein generating the modified list comprises sorting the modified list of intra-modes in ascending order according to a mode value of the intra-modes.

42. The method of claim **38**, wherein determining the MPMs comprises determining intra-modes associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein assigning an index to each of the MPMs comprises assigning an index to the an intra-mode associated with the left-neighboring video block that is less than an index of the an intra-mode associated with the above-neighboring video block.

43. The method of claim **38**, wherein determining the MPMs comprises determining intra-modes associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein assigning an index to each of the MPMs comprises assigning an index to the intra-mode associated with the above-neighboring video block that is less than an index of one of the intra-modes associated with the left-neighboring video block.

44. The method of claim **38**, wherein assigning an index to each of the MPMs comprises assigning indices to intra-modes of neighboring blocks of the current block based on an order in which the neighboring blocks are decoded.

45. The method of claim **38**, wherein assigning an index to each of the MPMs comprises assigning indices to the MPMs based on statistics associated with a likelihood of an MPM matching the intra-mode for predicting the current block.

46. The method of claim 37, further comprising decoding data that represents an order in which indices are assigned to the MPMs.

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

- a memory configured to store a current block of video data;
- and

- one or more processors configured to:

- determine most probable modes (MPMs) for predicting the current block of video data, wherein the MPMs are intra-modes associated with respective neighboring blocks of video data decoded prior to the current block;

- generate a list of the determined MPMs for predicting the current block of video data based on a position of the respective neighboring blocks of video data associated with the MPMs;

- assign an index to each of the MPMs in the list without resorting the MPMs in the list based on a mode index of the MPMs;

- decode intra-mode data of the current block, comprising decoding, when one of the MPMs matches an intra-mode for the current block, data that represents the index of the matching MPM in the list from an encoded bitstream;

- identify the intra-mode for predicting the current block using the index; and

- decode the current block with the identified intra-mode for the current block.

48. The apparatus of claim 47, wherein to decode the intra-mode data, the one or more processors are further configured to, when one of the MPMs does not match the intra-mode for predicting the current block:

decode an MPM flag that indicates that the intra-mode for predicting the current block is not an MPM;
generate a modified list of intra-modes; and
decode data that represents an index of the intra-mode of the current block in the modified list.

49. The apparatus of claim **48**, wherein to generate the modified list, the one or more processors are configured to eliminate the MPMs from the modified list of intra-modes.

50. The apparatus of claim **48**, wherein to generate the modified list, the one or more processors are configured to sort the modified list of intra-modes in ascending order according to a mode value of the intra-modes.

51. The apparatus of claim **47**, wherein to determine the MPMs, the one or more processors are configured to determine intra-modes associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein to assign an index to each of the MPMs, the one or more processors are configured to assign an index to the intra-mode associated with the left-neighboring video block that is less than an index of an intra-mode associated with the above-neighboring.

52. The apparatus of claim **47**, wherein to determine the MPMs, the one or more processors are configured to determine intra-modes associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein to assign an index to each of the MPMs, the one or more processors are configured to assign an index to the intra-mode associated with the above-neighboring video block that is less than an index of an intra-mode associated with the left-neighboring.

53. The apparatus of claim **47**, wherein to assign an index to each of the MPMs, the one or more processors are configured to assign indices to intra-modes of neighboring blocks of the current block based on an order in which the neighboring blocks are decoded.

54. The apparatus of claim **47**, wherein to assign an index to each of the MPMs, the one or more processors are configured to assign indices to the MPMs based on statistics associated with a likelihood of an MPM matching the intra-mode for predicting the current block.

55. The apparatus of claim **47**, wherein the one or more processors are further configured to decode data that represents an order in which indices are assigned to the MPMs.

56. The apparatus of claim **47**, wherein the apparatus comprises a video decoder, and wherein to decode the current block, the one or more processors further configured to:

- obtain, from the encoded bitstream, a residual video block associated with the current block;
- generate a reference block by predicting the current block using the identified intra-mode for the current block;
- determine values for the current block from a combination of the reference block and a received residual video block; and

wherein the apparatus further comprises a display configured to display the current block.

57. A non-transitory computer-readable storage medium having stored thereon instructions that, when executed, cause one or more processors to:

- determine most probable modes (MPMs) for predicting a current block of video data, wherein the MPMs are intra-modes associated with respective neighboring blocks of video data decoded prior to the current block;
- generate a list of the determined MPMs for predicting the current block of video data based on a position of the respective neighboring blocks of video data associated with the MPMs;

assign an index to each of the MPMs without resorting the MPMs in the list based on a mode index of the MPMs; decode intra-mode data of the current block, comprising decoding, when one of the MPMs matches an intra-mode for the current block, data that represents the index of the matching MPM in the list from an encoded bit-stream;

identify the intra-mode for predicting the current block using the index; and

decode the current block with the identified intra-mode for the current block.

58. The computer-readable storage medium of claim **57**, wherein to decode the intra-mode data of the current block, when one of the MPMs does not match the intra-mode for predicting the current block, the instructions further cause the one or more processors to:

decode an MPM flag that indicates that the intra-mode for predicting the current block is not an MPM;

generate a modified list of intra-modes; and

decode data that represents an index of the intra-mode of the current block in the modified list.

59. The computer-readable storage medium of claim **57**, wherein to determine the MPMs, the instructions cause the one or more processors to determine intra-modes associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein to assign an index to each of the MPMs, the instructions cause the one or more processors to intra-mode associated with the above-neighboring video block that is less than an index of the an intra-mode associated with the left-neighboring.

60. The computer-readable storage medium of claim **57**, wherein to determine the MPMs, the instructions cause the

one or more processors to determine intra-modes associated with a left-neighboring video block of the current block and an above-neighboring video block of the current block, and wherein to assign an index to each of the MPMs, the instructions cause the one or more processors to intra-mode associated with the left-neighboring video block that is less than an index of the an intra-mode associated with the above-neighboring.

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

- means for determining most probable modes (MPMs) for predicting a current block of video data, wherein the MPMs are intra-modes associated with respective neighboring blocks of video data decoded prior to the current block;
- means for generating a list of the determined MPMs for predicting the current block of video data based on a position of the respective neighboring blocks of video data associated with the MPMs;
- means for assigning an index to each of the MPMs in the list without resorting the MPMs in the list based on a mode index of the MPMs;
- means for decoding, when one of the MPMs matches an intra-mode for the current block, intra-mode data of the current block, comprising decoding data that represents the index of the matching MPM in the list from an encoded bitstream;
- means for identifying the intra-mode for predicting the current block using the index; and
- means for decoding the current block with the identified intra-mode for the current block.