CLAIMS

1. A method of decoding video data, the method comprising: receiving, in an encoded video bitstream, residual data corresponding to a prediction unit of the video data that is encoded according to an asymmetric motion partitioning (AMP) mode, is uni-directionally predicted using backward view synthesis prediction (BVSP), and has a size of 16x12, 12x16, 16x4, or 4x16; receiving, in the encoded video bitstream, data indicating that the prediction unit is uni-directionally predicted according to the BVSP; obtaining a single set of motion information for an entirety of the prediction unit; deriving a single disparity vector for the entirety of the prediction unit based on the single set of motion information obtained for the entirety of the prediction unit; partitioning the prediction unit according to the AMP mode to form a plurality of sub-blocks, each sub-block having a size of 8x4 or 4x8, and each sub-block having a respective set of motion information; deriving a respective disparity motion vector for each sub-block of the plurality of sub-blocks from a corresponding depth block in a depth picture corresponding to a reference picture, wherein the deriving is based on the prediction unit being uni-directionally predicted according to the BVSP, and wherein the deriving uses the single set of motion information obtained for the entirety of the prediction unit; synthesizing a respective reference block for each sub-block of the plurality of sub-blocks using the respective derived disparity motion vector; and decoding the prediction unit by performing motion compensation on each of the sub-blocks using the residual data and the synthesized respective reference blocks.

2. The method of claim 1, further comprising: receiving one or more syntax elements indicating that the prediction unit is encoded according to the AMP mode; and receiving a merge candidate index pointing to a BVSP candidate included in a merge candidate list.

3. The method of claim 1, wherein deriving the respective disparity motion vector for each sub-block comprises: locating the corresponding depth block for each sub-block of the plurality of sub-blocks using the single disparity vector derived for the prediction unit; and converting one selected depth value of the corresponding depth block for each sub-block of the plurality of sub-blocks to the respective disparity motion vector.

4. The method of claim 1, wherein the prediction unit is a first prediction unit, and wherein the plurality of sub-blocks is a first plurality of sub-blocks, the method further comprising: receiving residual data corresponding to a second prediction unit, wherein the second prediction unit is encoded using at least one of inter-view motion prediction or motion vector inheritance, and has a size of 16x4 or 4x16; partitioning the second prediction unit into a second plurality of sub-blocks, each respective sub-block of the second plurality of sub-blocks having a size of 8x4 or 4x8; deriving motion information for each sub-block of the second plurality of sub-blocks from one respective reference block; and decoding the second prediction unit by performing motion

compensation on each sub-block of the second plurality of sub-blocks using the residual data, the derived motion information, and one reference picture list.

5. The method of claim 4, wherein performing the motion compensation comprises performing uni-directional motion compensation relative to a picture in the one reference picture list.

6. The method of claim 1, wherein the prediction unit is a first prediction unit, and wherein the plurality of sub-blocks is a first plurality of sub-blocks, the method further comprising: receiving residual data corresponding to a second prediction unit, wherein the second prediction unit is encoded using at least one of inter-view motion prediction or motion vector inheritance, and has a size 16x12 or 12x16; partitioning the second prediction unit of video data into a second plurality of sub-blocks; and decoding each sub-block of the second plurality of sub-blocks with uni-predictive prediction.

7. The method of claim 1, wherein obtaining the single set of motion information for the entirety of the prediction unit comprises receiving the single set of motion information in the encoded video bitstream, and wherein decoding the prediction unit comprises decoding the prediction unit according to a merge mode.

8. The method of claim 1, wherein obtaining the single set of motion information for the entirety of the prediction unit comprises deriving the single set of motion information, and wherein decoding the prediction unit comprises decoding the prediction unit according to an advanced motion vector prediction (AMVP) mode.

9. A method of encoding video data, the method comprising: generating a prediction unit according to an asymmetric motion partitioning (AMP) mode, such that the prediction unit is uni-directionally predicted using backward view synthesis prediction (BVSP), and has a size of 16x12, 12x16, 16x4, or 4x16; partitioning the prediction unit according to the AMP mode to form a plurality of sub-blocks, each sub-block having a size of 8x4 or 4x8, and each sub-block having a respective set of motion information; deriving a respective disparity motion vector, based on the respective set of motion information, for each sub-block of the plurality of sub-blocks from a corresponding depth block in a depth picture corresponding to a reference picture; synthesizing a respective reference block for each sub-block of the plurality of sub-blocks partitioned from the prediction unit, using the respective derived disparity motion vectors; encoding the prediction unit by performing motion compensation on each sub-block of the plurality of sub-blocks using the synthesized respective reference blocks; and performing one of: signaling, in an encoded video bitstream, a single set of motion information for an entirety of the

encoded prediction unit; or inheriting, for the entirety of the encoded prediction unit, the single set of motion information from one or more neighboring blocks of the encoded prediction unit.

10. The method of claim 9, further comprising: generating one or more syntax elements indicating that the prediction unit is encoded according to the AMP mode; and generating a merge candidate index pointing to a BVSP candidate in a candidate list.

11. The method of claim 9, wherein deriving the respective disparity motion vector for each of the sub-blocks comprises: locating the corresponding depth block for each of the sub-blocks using the single disparity vector derived for the prediction unit; and converting one selected depth value of the corresponding depth block for each of the sub-blocks to the respective disparity motion vector.

12. The method of claim 9, wherein the prediction unit is a first prediction unit, the method further comprising: generating a second prediction unit according to the AMP mode, such that the second prediction unit is encoded using at least one of inter-view motion prediction or motion vector inheritance, and has a size of 16x4 or 4x16; partitioning the second prediction unit to form a second plurality of sub-blocks, each sub-block of the second plurality of sub-blocks having a size of 8x4 or 4x8; deriving motion information for each sub-block of the second plurality of sub-blocks from one respective reference block; and encoding the second prediction unit by performing motion compensation on each sub-block of the second plurality of sub-blocks using the derived motion information and one reference picture list.

13. The method of claim 12, wherein performing the motion compensation comprises performing uni-directional motion compensation relative to a picture in the one reference picture list.

14. The method of claim 9, wherein the prediction unit is a first prediction unit, the method further comprising: generating a second prediction unit according to the AMP mode, wherein the second prediction unit is encoded using at least one of inter-view motion prediction or motion vector inheritance, and has a size 16x12 or 12x16; partitioning the second prediction unit to form a second plurality of sub-blocks; and encoding each sub-block of the second plurality of sub-blocks with uni-predictive prediction.

15. An apparatus configured to decode video data, the apparatus comprising: a communications interface configured to receive an encoded video bitstream; a memory coupled to the communications interface and configured to store the encoded video bitstream, the encoded

video bitstream comprising residual data corresponding to a prediction unit; and one or more processors in communication with the memory device, the one or more processors being configured to: retrieve, from the encoded video bitstream memory, the residual data corresponding to the prediction unit, wherein the prediction unit is encoded according to an asymmetric motion partitioning (AMP) coding tool, is uni-directionally predicted using backward view synthesis prediction (BVSP), and has a size of 16x12, 12x16, 16x4, or 4x16; retrieve, from the encoded video bitstream stored to the memory, data indicating that the prediction unit is uni-directionally predicted according to the BVSP; obtain a single set of motion information for an entirety of the prediction unit; derive a single disparity vector for the entirety of the prediction unit based on the single set of motion information obtained for the entirety of the prediction unit; partition the prediction unit according to the AMP mode to form a plurality of sub-blocks, each sub-block having a size of 8x4 or 4x8, and each sub-block having a respective set of motion information; derive a respective disparity motion vector for each sub-block of the plurality of sub-blocks from a corresponding depth block in a depth picture corresponding to a reference picture, wherein to derive the respective disparity motion vector, the one or more processors are configured to derive the respective disparity motion vector based on the prediction unit being uni-directionally predicted according to the BVSP, and wherein to derive the respective disparity motion vector, the one or more processors are configured to use the single set of motion information obtained for the entirety of the prediction unit; synthesize a respective reference block for each sub-block of the plurality of sub-blocks using the respective derived disparity motion vector; and decode the prediction unit by performing motion compensation on each of the sub-blocks using the residual data and the synthesized respective reference blocks.

16. The apparatus of claim 15, wherein the one or more processors are further configured to: receive one or more syntax elements indicating that the prediction unit is encoded according to the AMP mode; and receive a merge candidate index pointing to a BVSP candidate included in a merge candidate list.

17. The apparatus of claim 15, wherein to derive the respective disparity motion vector for each sub-block, the one or more processors are further configured to: locate the corresponding depth block for each sub-block of the plurality of sub-blocks using the single disparity vector derived for the prediction unit; and convert one selected depth value of the corresponding depth block for each sub-block of the plurality of sub-blocks to the respective disparity motion vector.

18. The apparatus of claim 15, wherein the prediction unit is a first prediction unit, wherein the plurality of sub-blocks is a first plurality of sub-blocks, and wherein the one or more processors are further configured to: receive residual data corresponding to a second prediction unit, wherein the second prediction unit is encoded using at least one of inter-view motion prediction or motion vector inheritance, and has a size of 16x4 or 4x16; partition the second prediction unit to form a second plurality of sub-blocks, each respective sub-block of the second plurality of

sub-blocks having a size of 8x4 or 4x8; derive motion information for each sub-block of the second plurality of sub-blocks from one respective reference block; and decode the second prediction unit by performing motion compensation on each sub-block of the second plurality of sub-blocks using the residual data, the derived motion information, and one reference picture list.

19. The apparatus of claim 18, wherein to perform the motion compensation, the one or more processors are further configured to perform uni-directional motion compensation relative to a picture in the one reference picture list.

20. The apparatus of claim 15, wherein the prediction unit is a first prediction unit, wherein the plurality of sub-blocks is a first plurality of sub-blocks, and wherein the one or more processors are further configured to: receive residual data corresponding to a second prediction unit, wherein the second prediction unit is encoded using at least one of inter-view motion prediction or motion vector inheritance, and has a size of 16x12 or 12x16; partition the second prediction unit of video data into a second plurality of sub-blocks; and decode each sub-block of the second plurality of sub-blocks with uni-predictive prediction.

21. The apparatus of claim 15, further comprising: a display device configured to display decoded video data based on the decoded prediction unit.

22. The apparatus of claim 15, wherein the memory and the one or more processors form a video decoder housed within one of a mobile phone, a tablet computer, a laptop computer, a desktop computer, a set-top box, or a television.

23. The apparatus of claim 15, wherein to obtain the single set of motion information for the entirety of the prediction unit, the one or more processors are configured to receive the single set of motion information in the encoded video bitstream, and wherein to decode the prediction unit, the one or more processors are configured to decode the prediction unit according to a merge mode.

24. The apparatus of claim 15, wherein to obtain the single set of motion information for the entirety of the prediction unit, the one or more processors are configured to derive the single set of motion information, and wherein to decode the prediction unit, the one or more processors are configured to decode the prediction unit according to an advanced motion vector prediction (AMVP) mode.

25. An apparatus configured to decode video data, the apparatus comprising: means for receiving, in an encoded video bitstream, residual data corresponding to a prediction unit of the video data that is encoded according to an asymmetric motion partitioning (AMP) mode, is uni-directionally predicted using backward view synthesis prediction (BVSP), and has a size of 16x12, 12x16, 16x4, or 4x16; means for receiving, in the encoded video bitstream, data indicating that the prediction unit is uni-directionally predicted according to the BVSP; means for obtaining a single set of motion information for an entirety of the prediction unit; means for deriving a single disparity vector for the prediction unit based on the single set of motion information obtained for the entirety of the prediction unit; means for partitioning the prediction unit according to the AMP mode to form a plurality of sub-blocks, each sub-block having a size of 8x4 or 4x8, and each sub-block having a respective set of motion information; means for deriving a respective disparity vector for each sub-block of the plurality of sub-blocks from a corresponding depth block in a depth picture corresponding to a reference picture, wherein the means for deriving comprises means for deriving the respective disparity vector based on the prediction unit being uni-directionally predicted according to the BVSP, and wherein the means for deriving comprises means for deriving the respective disparity vector using the single set of motion information obtained for the entirety of the prediction unit; means for synthesizing a respective reference block for each sub-block of the plurality of sub-blocks using the respective derived disparity motion vector; and means for decoding the prediction unit by performing motion compensation on each of the sub-blocks using the residual data and the synthesized respective reference blocks.

26. The apparatus of claim 25, further comprising: means for receiving one or more syntax elements indicating that the prediction unit is encoded according to the AMP mode; and means for receiving a merge candidate index pointing to a BVSP candidate included in a merge candidate list.

27. The apparatus of claim 25, wherein the means for deriving the respective disparity motion vector for each sub-block comprises: means for locating the corresponding depth block for each sub-block of the plurality of sub-blocks using the single disparity vector derived for the prediction unit; and means for converting one selected depth value of the corresponding depth block for each sub-block of the plurality of sub-blocks to the respective disparity motion vector.

28. The apparatus of claim 25, wherein the prediction unit is a first prediction unit, and wherein the plurality of sub-blocks is a first plurality of sub-blocks, the apparatus further comprising: means for receiving residual data corresponding to a second prediction unit, wherein the second prediction unit is encoded using at least one of inter-view motion prediction or motion vector inheritance, and has a size of 16x4 or 4x16; means for partitioning the second prediction unit to form a second plurality of sub-blocks, each sub-block of the second plurality having a size of 8x4 or 4x8; means for deriving motion information for each sub-block of the second plurality of

sub-blocks from one respective reference block; and means for decoding the second prediction unit by performing motion compensation on each sub-block of the second plurality of sub-blocks using the residual data, the derived motion information, and one reference picture list.

29. The apparatus of claim 28, wherein the means for performing the motion compensation comprises means for performing uni-directional motion compensation relative to a picture in the one reference picture list.

30. The apparatus of claim 25, wherein the prediction unit is a first prediction unit, and wherein the plurality of sub-blocks is a first plurality of sub-blocks, the apparatus further comprising: means for receiving residual data corresponding to a second prediction unit, wherein the second prediction unit is encoded using at least one of inter-view motion prediction or motion vector inheritance, and has a size of 16x12 or 12x16; means for partitioning the second prediction unit to form a second plurality of sub-blocks; and means for decoding each sub-block of the second plurality of sub-blocks with uni-predictive prediction.