

CLAIMS:

1. A method of video decoding performed in a video decoder, the method comprising:
receiving coded information of a current block and neighboring blocks of the current block from a coded video bitstream;

obtaining first information associated with the current block in the coded information, the first information indicating whether the current block is intra predicted based on decoder side intra mode derivation (DIMD) in which an intra prediction mode of the current block is derived based on the neighboring blocks;

obtaining second information associated with the current block and the neighboring blocks in the coded information, the second information indicating whether the current block and one or more of the neighboring blocks are partitioned based on an intra sub-partition (ISP) mode;

setting a context model index to a first value in response to (i) the first information indicating that the current block is intra predicted based on the DIMD, and (ii) the second information indicating that an above adjacent block or a left adjacent block of the current block in the neighboring blocks is partitioned based on the ISP mode; and

decoding the current block from the coded video bitstream based at least on the context model index.

2. The method of claim 1, further comprising:

decoding the second information in response to the first information indicating that the current block is intra predicted based on the DIMD; and

decoding a syntax element associated with the ISP mode in response to the second information indicating that the current block is partitioned based on the ISP mode.

3. The method of claim 1, wherein:

the setting the context model index in response to the (i) the first information and (ii) the second information is performed in response to the first information indicating that the current block is intra predicted based on the DIMD, and

the method further includes:

in response to the first information indicating that the current block is not intra predicted based on the DIMD,

obtaining third information associated with the current block in the coded information, the third information indicating whether the current block is intra predicted based on template based intra mode derivation (TIMD) that includes a set of candidate intra prediction modes; and

setting the context model index to the first value in response to (i) the third information indicating that the current block is intra predicted based on the TIMD, and (ii) the second information indicating that the above adjacent block or the left adjacent block of the current block in the neighboring blocks is partitioned based on the ISP mode.

4. The method of claim 3, further comprising:

decoding the second information in response to the third information indicating that the current block is intra predicted based on the TIMD; and

decoding a syntax element associated with the ISP mode in response to the second information indicating that the current block is partitioned based on the ISP mode.

5. The method of claim 4, further comprising:

decoding a syntax element associated with another intra coding mode in response to the second information indicating that the current block is not partitioned based on the ISP mode, the other intra coding mode including one of matrix-based intra prediction (MIP), multiple reference lien intra prediction (MRL), and most probable mode (MPM).

6. The method of claim 1, further comprising one of:

determining the context model index is one in response to the first information indicating that the current block is intra predicted based on the DIMD; and

determining the context model index is zero in response to the first information indicating that the current block is not intra predicted based on the DIMD.

7. The method of claim 1, wherein the context model index is used in Context-based Adaptive Binary Arithmetic Coding (CABAC).

8. The method of claim 3, further comprising one of:

determining the context model index is one in response to the third information indicating that the current block is intra predicted based on the TIMD; and

determining the context model index is zero in response to the third information indicating that the current block is not intra predicted based on the TIMD.

9. A method of video decoding performed in a video decoder, the method comprising: receiving coded information of a current block and neighboring blocks of the current block from a coded video bitstream;

decoding first information associated with the current block in the coded information, the first information indicating whether the current block is intra predicted based on decoder side intra mode derivation (DIMD) in which an intra prediction mode of the current block is derived based on the neighboring blocks; and

in response to the first information indicating that the current block is intra predicted based on the DIMD,

decoding second information associated with the current block in the coded information, the second information indicating whether the current block is partitioned based on an intra sub-partition (ISP) mode;

decoding a syntax element associated with the ISP mode in response to the second information indicating that the current block is partitioned based on the ISP mode; and

in response to the second information indicating that the current block is not partitioned based on the ISP mode, determining a first intra prediction mode based on the DIMD, and determining a second intra prediction mode based on a syntax element that is included in the coded information and associated with most probable mode (MPM) and MPM remainder.

10. The method of claim 9, further comprising:
determining a first intra predictor based on the first intra prediction mode;
determining a second intra predictor based on the second intra prediction mode; and
determining a final intra predictor based on the first intra predictor and the second intra predictor.

11. The method of claim 10, wherein the determining the final intra predictor further comprises:

determining the final intra predictor to be equal to a sum of (i) a product of a first weight and the first intra predictor, and (ii) a product of a second weight and the second intra predictor, wherein:

the first weight is equal to or larger than the second weight, and
a sum of the first weight and the second weight is equal to one.

12. The method of claim 10, wherein the determining the final intra predictor further comprises:

determining the final intra predictor to be equal to a sum of (i) a product of a first weight and the first intra predictor, (ii) a product of a second weight and the second intra predictor, and (iii) a product of a third weight and an intra predictor based on a planar mode, wherein:

the first weight is equal to or larger than the second weight, and
a sum of the first weight, the second weight, and the third weight is equal to one.

13. An apparatus, comprising:

processing circuitry configured to:

receive coded information of a current block and neighboring blocks of the current block from a coded video bitstream;

obtain first information associated with the current block in the coded information, the first information indicating whether the current block is intra predicted based on decoder side intra mode derivation (DIMD) in which an intra prediction mode of the current block is derived based on the neighboring blocks;

obtain second information associated with the current block and the neighboring blocks in the coded information, the second information indicating whether the current block and one or more of the neighboring blocks are partitioned based on an intra sub-partition (ISP) mode;

set a context model index to a first value in response to (i) the first information indicating that the current block is intra predicted based on the DIMD, and (ii) the second information indicating that an above adjacent block or a left adjacent block of the current block in the neighboring blocks is partitioned based on the ISP mode; and

decode the current block from the coded video bitstream based at least on the context model index.

14. The apparatus of claim 13, wherein the processing circuitry is further configured to:

decode the second information in response to the first information indicating that the current block is intra predicted based on the DIMD; and

decode a syntax element associated with the ISP mode in response to the second information indicating that the current block is partitioned based on the ISP mode.

15. The apparatus of claim 13, wherein the processing circuitry is further configured to set the context model index in response to the first information and the second information in response to the first information indicating that the current block is intra predicted based on the DIMD, and

the processing circuitry is further configured to:

in response to the first information indicating that the current block is not intra predicted based on the DIMD,

obtain third information associated with the current block in the coded information, the third information indicating whether the current block is intra predicted based on template based intra mode derivation (TIMD) that includes a set of candidate intra prediction modes; and

set the context model index to the first value in response to (i) the third information indicating that the current block is intra predicted based on the TIMD, and (ii) the second information indicating that the above adjacent block or the left adjacent block of the current block in the neighboring blocks is partitioned based on the ISP mode.

16. The apparatus of claim 15, wherein the processing circuitry is further configured to:

determine the context model index is one in response to the third information indicating that the current block is intra predicted based on the TIMD; and

determine the context model index is zero in response to the third information indicating that the current block is not intra predicted based on the TIMD.

17. The apparatus of claim 13, wherein the processing circuitry is further configured to:

determine the context model index is one in response to the first information indicating that the current block is intra predicted based on the DIMD; and

determine the context model index is zero in response to the first information indicating that the current block is not intra predicted based on the DIMD.

18. An apparatus, comprising:

processing circuitry configured to:

receive coded information of a current block and neighboring blocks of the current block from a coded video bitstream;

decode first information associated with the current block in the coded information, the first information indicating whether the current block is intra predicted based on decoder side intra mode derivation (DIMD) in which an intra prediction mode of the current block is derived based on the neighboring blocks; and

in response to the first information indicating that the current block is intra predicted based on the DIMD,

decode second information associated with the current block in the coded information, the second information indicating whether the current block is partitioned based on an intra sub-partition (ISP) mode;

decode a syntax element associated with the ISP mode in response to the second information indicating that the current block is partitioned based on the ISP mode; and

in response to the second information indicating that the current block is not partitioned based on the ISP mode, determine a first intra prediction mode based on the DIMD, and determine a second intra prediction mode based on a syntax element that is included in the coded information and associated with most probable mode (MPM) and MPM remainder.