CLAIMS

1. A method of processing video data, comprising:

determining, for a conversion between a chroma block of a video and a bitstream of the video, whether to enable or disable a cross-component linear model intra prediction on the chroma block, based on partition information and a block dimension of a luma video unit which covers at least one sample of a corresponding luma region of the chroma block and a chroma video unit which covers at least one sample of a corresponding chroma region, wherein the chroma block is in a dual tree structure in which a luma component and at least one chroma component have separate partition tree structures;

determining, in response to the cross-component linear model intra prediction enabled, parameters of the cross-component linear model at least based on neighboring chroma samples of the chroma block;

applying the cross-component linear model to derive prediction values of the chroma block based on the parameters;

upon determining that the cross-component linear model intra prediction is disabled for the current video block, excluding, from the bitstream, a syntax element related to the cross-component linear model intra prediction; and

performing the conversion based on the prediction values.

2. The method of claim 1, wherein the cross-component linear model intra prediction is disabled when the dimension of the chroma video unit is 32×32 and the dimension of the luma video unit is 64×64, and the partition information specifies that the chroma video unit is split with a horizontal split operation which is not a quadtree split operation and the luma video unit is split with a vertical split operation which is not a quadtree split operation.

3. The method of claim 2, wherein the cross-component linear model intra prediction is disabled when the chroma video unit is split with a horizontal ternary split operation and the luma video unit is split with a vertical ternary split operation.

4. The method of claim 2 or 3, wherein the cross-component linear model intra prediction is disabled when the chroma video unit is split with a horizontal ternary split operation and the luma video unit is split with a vertical binary split operation.

5. The method of any of claims 2-4, wherein the cross-component linear model intra prediction is disabled when the chroma video unit is split with a horizontal binary split operation and the luma video unit is split with a vertical ternary split operation.

6. The method of any of claims 2-5, wherein the cross-component linear model intra prediction is disabled when the chroma video unit is split with a horizontal binary split operation and the luma video unit is split with a vertical binary split operation.

7. The method of any of claims 1-6, wherein the cross-component linear model intra prediction is disabled when the dimension of the luma video unit is 64×64, and the partition information specifies that the chroma video unit is split with a vertical split operation which is not a quadtree split operation and the luma video unit is split with a horizontal split operation which is not a quadtree split operation.

8. The method of any of claims 1-7, wherein the cross-component linear model intra prediction is disabled when the chroma video unit is split with a vertical ternary split operation and the luma video unit is split with a horizontal ternary split operation.

9. The method of any of claims 1-8, wherein the cross-component linear model intra prediction is disabled when the chroma video unit is split with a vertical ternary split operation and the luma video unit is split with a horizontal binary split operation.

10. The method of any of claims 1-9, wherein the cross-component linear model intra prediction is disabled when the chroma video unit is split with a binary vertical split operation and the luma video unit is split with a horizontal ternary split operation.

11. The method of any of claims 1-10, wherein the cross-component linear model intra prediction is disabled when the chroma video unit is split with a vertical binary split operation and the luma video unit is split with a horizontal binary split operation.

12. The method of any of claims 1-11, wherein the conversion includes encoding the chroma block into the bitstream.

13. The method of any of claims 1-11, wherein the conversion includes decoding the chroma block from the bitstream.

14. An apparatus for processing video data comprising a processor and a non-transitory memory with instructions thereon, wherein the instructions upon execution by the processor, cause the processor to:

determine, for a conversion between a chroma block of a video and a bitstream of the video, whether to enable or disable a cross-component linear model intra prediction on the chroma block, based on partition information and a block dimension of a luma video unit which covers at least one sample of a corresponding luma region of the chroma block and a chroma video unit which covers at least one sample of a corresponding chroma region, wherein the chroma block is in a dual tree structure in which a luma component and at least one chroma component have separate partition tree structures;

determine, in response to the cross-component linear model intra prediction enabled, parameters of the cross-component linear model at least based on neighboring chroma samples of the chroma block;

apply the cross-component linear model to derive prediction values of the chroma block based on the parameters;

upon determining that the cross-component linear model intra prediction is disabled for the current video block, excluding, from the bitstream, a syntax element related to the cross-component linear model intra prediction; and

perform the conversion based on the prediction values.

15. The apparatus of claim 14, wherein the cross-component linear model intra prediction is disabled when the dimension of the chroma video unit is 32×32 and the dimension of the luma video unit is 64×64, and the partition information specifies that the chroma video unit is split with a horizontal split operation which is not a quadtree split operation and the luma video unit is split with a vertical split operation which is not a quadtree split operation; or

wherein the cross-component linear model intra prediction is disabled when the dimension of the luma video unit is 64×64, and the partition information specifies that the chroma video unit is split with a vertical split operation which is not a quadtree split operation and the luma video unit is split with a horizontal split operation which is not a quadtree split operation.

16. The apparatus of claim 14, wherein the cross-component linear model intra prediction is disabled when the chroma video unit is split with a horizontal ternary split operation and the luma video unit is split with a vertical ternary split operation.

17. A non-transitory computer-readable storage medium storing instructions that cause a processor to:

determine, for a conversion between a chroma block of a video and a bitstream of the video, whether to enable or disable a cross-component linear model intra prediction on the chroma block, based on partition information and a block dimension of a luma video unit which covers at least one sample of a corresponding luma region of the chroma block and a chroma video unit which covers at least one sample of a corresponding chroma region, wherein the chroma block is in a dual tree structure in which a luma component and at least one chroma component have separate partition tree structures;

determine, in response to the cross-component linear model intra prediction enabled, parameters of the cross-component linear model at least based on neighboring chroma samples of the chroma block;

apply the cross-component linear model to derive prediction values of the chroma block based on the parameters;

upon determining that the cross-component linear model intra prediction is disabled for the current video block, excluding, from the bitstream, a syntax element related to the cross-component linear model intra prediction; and

perform the conversion based on the prediction values.

18. The non-transitory computer-readable storage medium of claim 17, wherein the cross-component linear model intra prediction is disabled when the dimension of the chroma video unit is 32×32 and the dimension of the luma video unit is 64×64, and the partition information specifies that the chroma video unit is split with a horizontal split operation which is not a quadtree split operation and the luma video unit is split with a vertical split operation which is not a quadtree split operation; or

wherein the cross-component linear model intra prediction is disabled when the dimension of the luma video unit is 64×64, and the partition information specifies that the chroma video unit is split with a vertical split operation which is not a quadtree split operation and the luma video unit is split with a horizontal split operation which is not a quadtree split operation.

19. A non-transitory computer-readable recording medium storing a bitstream of a video which is generated by a method performed by a video processing apparatus, wherein the method comprises:

determining whether to enable or disable a cross-component linear model intra prediction on the chroma block, based on partition information and a block dimension of a luma video unit which covers at least one sample of a corresponding luma region of the chroma block and a chroma video unit which covers at least one sample of a corresponding chroma region, wherein the chroma block is in a dual tree structure in which a luma component and at least one chroma component have separate partition tree structures;

determining, in response to the cross-component linear model intra prediction enabled, parameters of the cross-component linear model at least based on neighboring chroma samples of the chroma block;

applying the cross-component linear model to derive prediction values of the chroma block based on the parameters;

upon determining that the cross-component linear model intra prediction is disabled for the current video block, excluding, from the bitstream, a syntax element related to the cross-component linear model intra prediction; and

generating the bitstream based on the prediction values.

20. The non-transitory computer-readable storage medium of claim 19, wherein the cross-component linear model intra prediction is disabled when the dimension of the chroma video unit is 32×32 and the dimension of the luma video unit is 64×64, and the partition information specifies that the chroma video unit is split with a horizontal split operation which is not a quadtree split operation and the luma video unit is split with a vertical split operation which is not a quadtree split operation; or

wherein the cross-component linear model intra prediction is disabled when the dimension of the luma video unit is 64×64, and the partition information specifies that the chroma video unit is split with a vertical split operation which is not a quadtree split operation and the luma video unit is split with a horizontal split operation which is not a quadtree split operation.