Amended Set of Claims 1 to 37

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

associating, without determining whether an edge between a first video block and a second video block is a coding unit (CU) edge, a first boundary strength value with the edge in response to determining that the first video block or the second video block is associated with an intra-predicted CU;

associating a second boundary strength value with the edge in response to determining that the first video block and the second video block are not associated with an intra-predicted CU and that the first video block or the second video block are associated with a transform unit (TU) with a non-zero transform coefficient level;

associating either the second boundary strength value or a third boundary strength value with the edge when the first video block and the second video block are not associated with an intra-predicted CU and the first video block and the second video block are not associated with a TU with a non-zero transform coefficient level; and

applying one or more deblocking filters to samples associated with the edge when the edge is associated with the first boundary strength value or the second boundary strength value, but not the third boundary strength value.

2. (Canceled)

3. The method of claim 1, wherein the first boundary strength value is equal to two, the second boundary strength value is equal to one, and the third boundary strength value is equal to zero.

4. The method of claim 1, wherein applying the one or more deblocking filters comprises:

applying a deblocking filter to chroma samples associated with the edge when the edge is associated with the first boundary strength value; and

applying a deblocking filter to luma samples associated with the edge when the edge is associated with the first boundary strength value or the second boundary strength value.

5. The method of claim 4,

wherein the method further comprises:

determining a first threshold value and a second threshold value based on a deblocking quantization parameter (QP) value and based on whether the first or the second boundary strength value is associated with the edge;

determining whether the first or the second threshold values are equal to zero; and

applying no deblocking filter to the luma samples associated with the edge when either the first or the second threshold value is equal to zero; and

wherein applying the deblocking filter to the luma samples associated with the edge comprises applying the deblocking filter to the luma samples associated with the edge when the edge is associated with the first or second boundary strength value and neither the first or the second threshold value is equal to zero.

6. The method of claim 4, wherein applying the deblocking filters to the luma samples associated with the edge comprises:

using only a single multiplication operation to calculate a delta value; and

determining, based on the delta value, modified values of the luma samples associated with the edge.

7. The method of claim 4,

wherein the edge is eight luma samples in height or width, the eight luma samples divided equally into a first edge segment and a second edge segment; and

wherein the method further comprises:

determining, based on a third line of samples that crosses the edge, whether to apply a first deblocking filter or a second deblocking filter to luma samples associated with the first edge segment, wherein the first deblocking filter modifies up to three luma samples on either side of the edge and the second deblocking filter modifies up to two luma samples on either side of the edge; and

determining, based on a sixth line of samples that crosses the edge, whether to apply a third deblocking filter or a fourth deblocking filter to luma samples associated with the second edge segment, wherein the third deblocking filter modifies up to three luma samples on either side of the edge and the fourth deblocking filter modifies up to two luma samples on either side of the edge.

8. The method of claim 4,

wherein the edge is a chroma edge and the method further comprises determining whether the chroma edge is associated with an intra-slice; and

wherein applying the deblocking filters to the chroma samples associated with the chroma edge comprises applying the deblocking filters to the chroma samples associated with the chroma edge only when the chroma edge is associated with an I-slice and the chroma edge is associated with the first boundary strength value.

9. The method of claim 4, wherein the method further comprises:

identifying transform unit (TU) and prediction unit (PU) edges according to an NxN grid; and

determining whether a chroma video block has a size larger than NxN samples;

wherein applying a deblocking filter to chroma samples comprises:

applying, when the chroma video block has a size smaller than or equal to NxN samples, the deblocking filter to the chroma samples associated with the edge; and

when the chroma video block has a size larger than NxN samples, turning the deblocking filter off for edges of the grid that are internal to the chroma video block.

10. The method of claim 1,

wherein associating either the second boundary strength value or the third boundary strength value with the edge comprises:

associating the second boundary strength value with the edge when one or more of the following additional conditions are satisfied:

the first video block or the second video block are associated with different reference pictures or are associated with different numbers of motion vectors;

the first video block and the second video block are each associated with one motion vector and that the absolute value of the difference between horizontal dimension components of the motion vectors associated with the first video block and the second video block is greater than or equal to one;

the first video block and the second video block are each associated with one motion vector and that the absolute value of the difference between vertical dimension components of the motion vectors associated with the first video block and the second video block is greater than or equal to one;

the first video block and the second video block are each associated with two motion vectors and that, for at least one pair of the motion vectors associated with the first video block and the second video block, the absolute value of the difference between horizontal dimension components of the motion vectors in the pair is greater than or equal to one; and

the first video block and the second video block are each associated with two motion vectors and that, for at least one pair of the motion vectors associated with the first video block and the second video block, the absolute value of the difference between vertical dimension components of the motion vectors in the pair is greater than or equal to one.

11. The method of claim 1, wherein the method comprises a method of video decoding, further comprising:

receiving a bitstream;

generating a predicted video block and a residual video block based on syntax elements in the bitstream; and

generating the first video block based on the predicted video block and the residual video block.

12. The method of claim 1, wherein the method comprises a method of video encoding, further comprising:

after applying the deblocking filter to the samples associated with the edge, generating a predicted video block based at least in part on the samples associated with the edge; and

outputting a bitstream that includes one or more syntax elements whose values are based at least in part on the predicted video block.

13. A video coding apparatus comprising one or more processors configured to:

associate, without determining whether an edge between a first video block and a second video block is a coding unit (CU) edge, a first boundary strength value with the edge in response to determining that the first video block or the second video block is associated with an intra-predicted CU;

associate a second boundary strength value with the edge in response to determining that the first video block and the second video block are not associated with an intra-predicted CU and that the first video block or the second video block are associated with a transform unit (TU) with a non-zero transform coefficient level;

associate either the second boundary strength value or a third boundary strength value with the edge when the first video block and the second video block are not associated with an intra-predicted CU and the first video block and the second video block are not associated with a TU with a non-zero transform coefficient level; and

apply a deblocking filter to samples associated with the edge when the edge is associated with the first boundary strength value or the second boundary strength value, but not the third boundary strength value.

14. (Canceled)

15. The video coding apparatus of claim 13, wherein the first boundary strength value is equal to two, the second boundary strength value is equal to one, and the third boundary strength value is equal to zero.

16. The video coding apparatus of claim 13, wherein the one or more processors are configured to:

apply a deblocking filter to chroma samples associated with the edge when the edge is associated with the first boundary strength value; and

apply a deblocking filter to luma samples associated with the edge when the edge is associated with the first boundary strength value or the second boundary strength value.

17. The video coding apparatus of claim 16, wherein the one or more processors are further configured to:

determine a first threshold value and a second threshold value based on a deblocking quantization parameter (QP) value and based on whether the first or the second boundary strength value is associated with the edge;

determine whether the first or the second threshold values are equal to zero;

apply no deblocking filter to the luma samples associated with the edge when either the first or the second threshold value is equal to zero; and

apply the deblocking filter to the luma samples associated with the edge when the edge is associated with the first or second boundary strength value and neither the first or the second threshold value is equal to zero.

18. The video coding apparatus of claim 16, wherein the one or more processors are configured to:

use only a single multiplication operation to calculate a delta value; and

determine, based on the delta value, modified values of the luma samples associated with the edge.

19. The video coding apparatus of claim 16,

wherein the edge is eight luma samples in height or width, the eight luma samples divided equally into a first edge segment and a second edge segment; and

wherein the one or more processors are configured to:

determine, based on a third line of samples that crosses the edge, whether to apply a first deblocking filter to luma samples associated with the first edge segment;

determine, based on a sixth line of samples that crosses the edge, whether to apply the first deblocking filter to luma samples associated with the second edge segment;

apply, based on the determination whether to apply the first deblocking filter to the luma samples associated with the first edge segment, the first deblocking filter or a second deblocking filter to the luma samples associated with the first edge segment, wherein the first deblocking filter modifies up to three luma samples on either side of the edge and the second deblocking filter modifies up to two luma samples on either side of the edge; and

apply, based on the determination whether to apply the first deblocking filter to the luma samples associated with the second edge segment, the first deblocking filter or the second deblocking filter to the luma samples associated with the second edge segment.

20. The video coding apparatus of claim 16, wherein the edge is a chroma edge and the one or more processors are configured to:

determine whether the chroma edge is associated with an I-slice; and

apply the deblocking filter to the chroma samples associated with the chroma edge only when the chroma edge is associated with an I-slice and the chroma edge is associated with the first boundary strength value.

21. The video coding apparatus of claim 16, wherein the one or more processor are configured to:

determine whether the edge corresponds to an external edge of a 32x32 transform unit (TU); and

apply the deblocking filter to the chroma samples associated with the edge only when the edge corresponds to an external edge of the 32x32 TU and the edge is associated with the first boundary strength value.

22. The video coding apparatus of claim 13, wherein the one or more processors are configured to associate the second boundary strength value with the edge when one or more of the following additional conditions are satisfied:

the first video block or the second video block are associated with different reference pictures or are associated with different numbers of motion vectors;

the first video block and the second video block are each associated with one motion vector and that the absolute value of the difference between horizontal dimension components of the motion vectors associated with the first video block and the second video block is greater than or equal to one;

the first video block and the second video block are each associated with one motion vector and that the absolute value of the difference between vertical dimension components of the motion vectors associated with the first video block and the second video block is greater than or equal to one;

the first video block and the second video block are each associated with two motion vectors and that, for at least one pair of the motion vectors associated with the first video block and the second video block, the absolute value of the difference between horizontal dimension components of the motion vectors in the pair is greater than or equal to one; and

the first video block and the second video block are each associated with two motion vectors and that, for at least one pair of the motion vectors associated with the first video block and the second video block, the absolute value of the difference between vertical dimension components of the motion vectors in the pair is greater than or equal to one.

23. The video coding apparatus of claim 13, wherein the one or more processors are configured to:

receive a bitstream;

generate a predicted video block and a residual video block based on syntax elements in the bitstream; and

generate the first video block based on the predicted video block and the residual video block.

24. The video coding apparatus of claim 13, wherein the one or more processors are configured to:

generate, after applying the deblocking filter to the samples associated with the edge, a predicted video block based at least in part on the samples associated with the edge; and

output a bitstream that includes one or more syntax elements whose values are based at least in part on the predicted video block.

25. A video coding apparatus that comprises:

means for associating, without determining whether an edge between a first video block and a second video block is a coding unit (CU) edge, a first boundary strength value with the edge in response to determining that the first video block or the second video block is associated with an intra-predicted CU;

means for associating a second boundary strength value with the edge in response to determining that the first video block and the second video block are not associated with an intra-predicted CU and that the first video block or the second video block are associated with a transform unit (TU) with a non-zero transform coefficient level;

means for associating either the second boundary strength value or a third boundary strength value with the edge when the first video block and the second video block are not associated with an intra-predicted CU and the first video block and the second video block are not associated with a TU with a non-zero transform coefficient level; and

means for applying one or more deblocking filters to samples associated with the edge when the edge is associated with the first boundary strength value or the second boundary strength value, but not the third boundary strength value.

26. (Canceled)

27. The video coding apparatus of claim 25, wherein the first boundary strength value is equal to two, the second boundary strength value is equal to one, and the third boundary strength value is equal to zero.

28. The video coding apparatus of claim 25, wherein the means for applying the one or more deblocking filters comprises:

means for applying a deblocking filter to chroma samples associated with the edge when the edge is associated with the first boundary strength value; and

means for applying a deblocking filter to luma samples associated with the edge when the edge is associated with the first boundary strength value or the second boundary strength value.

29. The video coding apparatus of claim 28,

wherein the video coding apparatus further comprises:

means for determining a first threshold value and a second threshold value based on a deblocking quantization parameter (QP) value and based on whether the first or the second boundary strength value is associated with the edge;

means for determining whether the first or the second threshold values are equal to zero; and

means for applying no deblocking filter to the luma samples associated with the edge when either the first or the second threshold value is equal to zero; and

wherein the means for applying the deblocking filter to the luma samples associated with the edge comprises means for applying the deblocking filter to the luma samples associated with the edge when the edge is associated with the first or second boundary strength value and neither the first or the second threshold value is equal to zero.

30. The video coding apparatus of claim 28, wherein the means for applying the deblocking filters to the luma samples associated with the edge comprises:

means for using only a single multiplication operation to calculate a delta value; and

means for determining, based on the delta value, modified values of the luma samples associated with the edge.

31. The video coding apparatus of claim 28,

wherein the edge is eight luma samples in height or width, the eight luma samples divided equally into a first edge segment and a second edge segment; and

wherein the video coding apparatus further comprises:

means for determining, based on a third line of samples that crosses the edge, whether to apply a first deblocking filter or a second deblocking filter to luma samples associated with the first edge segment, wherein the first deblocking filter modifies up to three luma samples on either side of the edge and the second deblocking filter modifies up to two luma samples on either side of the edge; and

means for determining, based on a sixth line of samples that crosses the edge, whether to apply a third deblocking filter or a fourth deblocking filter to luma samples associated with the second edge segment, wherein the third deblocking filter modifies up to three luma samples on either side of the edge and the fourth deblocking filter modifies up to two luma samples on either side of the edge.

32. The video coding apparatus of claim 28,

wherein the edge is a chroma edge and the video coding apparatus further comprises means for determining whether the chroma edge is associated with an intra-slice; and

wherein the means for applying the deblocking filters to the chroma samples associated with the chroma edge comprises means for applying the deblocking filters to the chroma samples associated with the chroma edge only when the chroma edge is associated with an I-slice and the chroma edge is associated with the first boundary strength value.

33. The video coding apparatus of claim 28, wherein the video coding apparatus further comprises:

means for identifying transform unit (TU) and prediction unit (PU) edges according to an NxN grid;

means for determining whether a chroma video block has a size larger than NxN samples;

wherein the means for applying a deblocking filter to chroma samples comprises:

means for applying, when the chroma video block has a size smaller than or equal to NxN samples, the deblocking filter to the chroma samples associated with the edge; and

means for turning, when the chroma video block has a size larger than NxN samples, the deblocking filter off for edges of the grid that are internal to the chroma video block.

34. The video coding apparatus of claim 25,

wherein the video coding apparatus further comprises means for associating the second boundary strength value with the edge when one or more of the following additional conditions are satisfied:

the first video block or the second video block are associated with different reference pictures or are associated with different numbers of motion vectors;

the first video block and the second video block are each associated with one motion vector and that the absolute value of the difference between horizontal dimension components of the motion vectors associated with the first video block and the second video block is greater than or equal to one;

the first video block and the second video block are each associated with one motion vector and that the absolute value of the difference between vertical dimension components of the motion vectors associated with the first video block and the second video block is greater than or equal to one;

the first video block and the second video block are each associated with two motion vectors and that, for at least one pair of the motion vectors associated with the first video block and the second video block, the absolute

value of the difference between horizontal dimension components of the motion vectors in the pair is greater than or equal to one; and

the first video block and the second video block are each associated with two motion vectors and that, for at least one pair of the motion vectors associated with the first video block and the second video block, the absolute value of the difference between vertical dimension components of the motion vectors in the pair is greater than or equal to one.

35. The video coding apparatus of claim 25, wherein the video coding apparatus comprises a video decoding apparatus, further comprising:

means for receiving a bitstream;

means for generating a predicted video block and a residual video block based on syntax elements in the bitstream; and

means for generating the first video block based on the predicted video block and the residual video block.

36. The video coding apparatus of claim 25, wherein the video coding apparatus comprises a video encoding apparatus, further comprising:

means for generating, after applying the deblocking filter to the samples associated with the edge, a predicted video block based at least in part on the samples associated with the edge; and

means for outputting a bitstream that includes one or more syntax elements whose values are based at least in part on the predicted video block.

37. A computer program product that comprises one or more computer-readable storage media that store computer-executable instructions that, when executed, cause one or more processors to:

associate, without determining whether an edge between a first video block and a second video block is a coding unit (CU) edge, a first boundary strength value with the edge in response to determining that the first video block or the second video block is associated with an intra-predicted CU;

associate a second boundary strength value with the edge in response to determining that the first video block and the second video block are not associated with an intra-predicted CU and that the first video block or the second video block are associated with a transform unit (TU) with a non-zero transform coefficient level;

associate either the second boundary strength value or a third boundary strength value with the edge when the first video block and the second video block are not associated with an intra-predicted CU and the first video block and the second video block are not associated with a TU with a non-zero transform coefficient level; and

apply one or more deblocking filters to samples associated with the edge when the edge is associated with the first boundary strength value or the second boundary strength value, but not the third boundary strength value.

38. (Canceled)

CLAIMS

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

associating, without determining whether an edge between a first video block and a second video block is a coding unit (CU) edge, a first boundary strength value with the edge in response to determining that the first video block or the second video block is associated with an intra-predicted CU;

associating a second boundary strength value with the edge in response to determining that the first video block and the second video block are not associated with an intra-predicted CU and that the first video block or the second video block is associated with a transform unit (TU) with a non-zero transform coefficient level;

associating either the second boundary strength value or a third boundary strength value with the edge when the first video block and the second video block are not associated with an intra-predicted CU and the first video block and the second video block are not associated with a TU with a non-zero transform coefficient level, wherein the second boundary strength value is associated with the edge when one or more of the following additional conditions are satisfied:

the first video block and the second video block are associated with different reference pictures or are associated with different numbers of motion vectors,

the first video block and the second video block are each associated with one motion vector and the absolute value of the difference between horizontal dimension components of the motion vectors associated with the first video block and the second video block is greater than or equal to one,

the first video block and the second video block are each associated with one motion vector and the absolute value of the difference between vertical dimension components of the motion vectors associated with the first video block and the second video block is greater than or equal to one,

the first video block and the second video block are each associated with two motion vectors and, for at least one pair of the motion vectors associated with the first video block and the second video block, the absolute value of the difference between horizontal dimension components of the motion vectors in the pair is greater than or equal to one, and

the first video block and the second video block are each associated with two motion vectors and, for at least one pair of the motion vectors associated with the first video block and the second video block, the absolute value of the difference between vertical dimension components of the motion vectors in the pair is greater than or equal to one; and

applying one or more deblocking filters to samples associated with the edge when the edge is associated with the first boundary strength value or the second boundary strength value, but not the third boundary strength value.

2. The method of claim **1**, wherein the first boundary strength value is equal to two, the second boundary strength value is equal to one, and the third boundary strength value is equal to zero.

3. The method of claim **1**, wherein applying the one or more deblocking filters comprises:

applying a deblocking filter to chroma samples associated with the edge when the edge is associated with the first boundary strength value; and

applying a deblocking filter to luma samples associated with the edge when the edge is associated with the first boundary strength value or the second boundary strength value.

4. The method of claim **3**, wherein the method further comprises:

determining a first threshold value and a second threshold value based on a deblocking quantization parameter (QP) value and based on whether the first or the second boundary strength value is associated with the edge;

determining whether the first or the second threshold values is equal to zero; and

applying no deblocking filter to the luma samples associated with the edge when either the first or the second threshold value is equal to zero, and

wherein applying the deblocking filter to the luma samples associated with the edge comprises applying the deblocking filter to the luma samples associated with the edge when the edge is associated with the first or second boundary strength value and neither the first or the second threshold value is equal to zero.

5. The method of claim **3**, wherein applying the deblocking filter to the luma samples associated with the edge comprises:

using only a single multiplication operation to calculate a delta value, wherein the calculation comprises multiplying a step discontinuity across the edge by a constant; and

determining, based on the delta value, modified values of the luma samples associated with the edge, wherein the determining includes respectively adding and subtracting the delta value to luma samples of the first and second video blocks at the edge.

6. The method of claim **3**,

wherein the edge is eight luma samples in height or width, the eight luma samples divided equally into a first edge segment and a second edge segment, and

wherein the method further comprises:

determining, based on a third line of samples that crosses the edge, whether to apply a first deblocking filter or a second deblocking filter to luma samples associated with the first edge segment, wherein the first deblocking filter modifies up to three luma samples on either side of the edge and the second deblocking filter modifies up to two luma samples on either side of the edge; and

determining, based on a sixth line of samples that crosses the edge, whether to apply a third deblocking filter or a fourth deblocking filter to luma samples associated with the second edge segment, wherein the third deblocking filter modifies up to three luma samples on either side of the edge and the fourth deblocking filter modifies up to two luma samples on either side of the edge.

7. The method of claim **3**,

wherein the edge is a chroma edge and the method further comprises determining whether the chroma edge is associated with an I-slice, the chroma edge being associated with the I-slice if the chroma edge is associated with a CU that is in the I-slice, and

wherein applying the deblocking filter to the chroma samples associated with the chroma edge comprises applying the deblocking filter to the chroma samples

associated with the chroma edge only when the chroma edge is associated with the I-slice and the chroma edge is associated with the first boundary strength value.

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

identifying transform unit (TU) and prediction unit (PU) edges of an N×N grid, wherein a size of a luminance video block is 2N×2N or larger;

determining whether a chroma video block has a size larger than N samples by N samples;

wherein applying the deblocking filter to chroma samples comprises:

applying, when the chroma video block has a size smaller than or equal to N samples by N samples, the deblocking filter to the chroma samples associated with the edge; and

when the chroma video block has a size larger than N samples by N samples, turning the deblocking filter off for edges of the grid that are internal to the chroma video block.

9. The method of claim **1**, wherein the method comprises a method of video decoding, the method further comprising:

receiving a bitstream;

generating a predicted video block and a residual video block based on syntax elements in the bitstream; and

generating the first video block based on the predicted video block and the residual video block.

10. The method of claim **1**, wherein the method comprises a method of video encoding, the method further comprising:

after applying the one or more deblocking filters to the samples associated with the edge, generating a predicted video block based at least in part on the samples associated with the edge; and

outputting a bitstream that includes one or more syntax elements whose values are based at least in part on the predicted video block.

11. A video coding apparatus comprising:

a data storage medium configured to store video data comprising a first video block and a second video block; and

one or more processors configured to:

associate, without determining whether an edge between the first video block and the second video block is a coding unit (CU) edge, a first boundary strength value with the edge in response to determining that the first video block or the second video block is associated with an intra-predicted CU of the video data;

associate a second boundary strength value with the edge in response to determining that the first video block and the second video block are not associated with an intra-predicted CU and that the first video block or the second video block is associated with a transform unit (TU) with a non-zero transform coefficient level;

associate either the second boundary strength value or a third boundary strength value with the edge when the first video block and the second video block are not associated with an intra-predicted CU and the first video block and the second video block are not associated with a TU with a non-zero transform coefficient level, wherein the second boundary strength value is associated with the edge when one or more of the following additional conditions are satisfied:

the first video block and the second video block are associated with different reference pictures or are associated with different numbers of motion vectors,

the first video block and the second video block are each associated with one motion vector and the absolute value of the difference between horizontal dimension components of the motion vectors associated with the first video block and the second video block is greater than or equal to one,

the first video block and the second video block are each associated with one motion vector and the absolute value of the difference between vertical dimension components of the motion vectors associated with the first video block and the second video block is greater than or equal to one,

the first video block and the second video block are each associated with two motion vectors and, for at least one pair of the motion vectors associated with the first video block and the second video block, the absolute value of the difference between horizontal dimension components of the motion vectors in the pair is greater than or equal to one, and

the first video block and the second video block are each associated with two motion vectors and, for at least one pair of the motion vectors associated with the first video block and the second video block, the absolute value of the difference between vertical dimension components of the motion vectors in the pair is greater than or equal to one; and

apply one or more deblocking filters to samples stored in the data storage medium and associated with the edge when the edge is associated with the first boundary strength value or the second boundary strength value, but not the third boundary strength value.

12. The video coding apparatus of claim **11**, wherein the first boundary strength value is equal to two, the second boundary strength value is equal to one, and the third boundary strength value is equal to zero.

13. The video coding apparatus of claim **11**, wherein the one or more processors are configured to:

apply a deblocking filter to chroma samples associated with the edge when the edge is associated with the first boundary strength value; and

apply a deblocking filter to luma samples associated with the edge when the edge is associated with the first boundary strength value or the second boundary strength value.

14. The video coding apparatus of claim **13**, wherein the one or more processors are further configured to:

determine a first threshold value and a second threshold value based on a deblocking quantization parameter (QP) value and based on whether the first or the second boundary strength value is associated with the edge;

determine whether the first or the second threshold values is equal to zero;

apply no deblocking filter to the luma samples associated with the edge when either the first or the second threshold value is equal to zero; and

apply the deblocking filter to the luma samples associated with the edge when the edge is associated with the first or second boundary strength value and neither the first or the second threshold value is equal to zero.

15. The video coding apparatus of claim **13**, wherein the one or more processors are configured to:

use only a single multiplication operation to calculate a delta value, wherein the calculation comprises multiplying a step discontinuity across the edge by a constant; and

determine, based on the delta value, modified values of the luma samples associated with the edge, wherein the determining includes respectively adding and subtracting the delta value to luma samples of the first and second video blocks at the edge.

16. The video coding apparatus of claim **13**,

wherein the edge is eight luma samples in height or width, the eight luma samples divided equally into a first edge segment and a second edge segment; and

wherein the one or more processors are configured to:

determine, based on a third line of samples that crosses the edge, whether to apply a first deblocking filter to luma samples associated with the first edge segment;

determine, based on a sixth line of samples that crosses the edge, whether to apply the first deblocking filter to

luma samples associated with the second edge segment;

apply, based on the determination whether to apply the first deblocking filter to the luma samples associated with the first edge segment, the first deblocking filter or a second deblocking filter to the luma samples associated with the first edge segment, wherein the first deblocking filter modifies up to three luma samples on either side of the edge and the second deblocking filter modifies up to two luma samples on either side of the edge; and

apply, based on the determination whether to apply the first deblocking filter to the luma samples associated with the second edge segment, the first deblocking filter or the second deblocking filter to the luma samples associated with the second edge segment.

17. The video coding apparatus of claim **13**, wherein the edge is a chroma edge and the one or more processors are configured to:

determine whether the chroma edge is associated with an I-slice; and

apply the deblocking filter to the chroma samples associated with the chroma edge only when the chroma edge is associated with an I-slice and the chroma edge is associated with the first boundary strength value.

18. The video coding apparatus of claim **13**, wherein the one or more processors are configured to:

determine whether the edge corresponds to an external edge of a 32×32 transform unit (TU); and

apply the deblocking filter to the chroma samples associated with the edge only when the edge corresponds to an external edge of the 32×32 TU and the edge is associated with the first boundary strength value.

19. The video coding apparatus of claim **11**, further comprising a display configured to display a picture that includes the first video block, wherein the one or more processors are configured to:

receive a bitstream;

generate a predicted video block and a residual video block based on syntax elements in the bitstream; and

generate the first video block based on the predicted video block and the residual video block.

20. The video coding apparatus of claim **19**, further comprising a display configured to display decoded video data including the first video block.

21. The video coding apparatus of claim **11**, further comprising a camera configured to capture a picture that includes the first video block, wherein the one or more processors are configured to:

generate, after applying the deblocking filter to the samples associated with the edge, a predicted video block based at least in part on the samples associated with the edge; and

output a bitstream that includes one or more syntax elements whose values are based at least in part on the predicted video block.

22. The video coding apparatus of claim **11**, wherein the video coding apparatus comprises at least one of:

an integrated circuit;

a microprocessor; or

a wireless handset.

23. The video coding apparatus of claim **11**, further comprising a camera configured to capture the video data.

24. A video coding apparatus that comprises:

means for associating, without determining whether an

edge between a first video block and a second video block is a coding unit (CU) edge, a first boundary strength value with the edge in response to determining that the first video block or the second video block is associated with an intra-predicted CU;

means for associating a second boundary strength value with the edge in response to determining that the first video block and the second video block are not associated with an intra-predicted CU and that the first video block or the second video block is associated with a transform unit (TU) with a non-zero transform coefficient level;

means for associating either the second boundary strength value or a third boundary strength value with the edge when the first video block and the second video block are not associated with an intra-predicted CU and the first video block and the second video block are not associated with a TU with a non-zero transform coefficient level, wherein the second boundary strength value is associated with the edge when one or more of the following additional conditions are satisfied:

the first video block and the second video block are associated with different reference pictures or are associated with different numbers of motion vectors,

the first video block and the second video block are each associated with one motion vector and the absolute value of the difference between horizontal dimension components of the motion vectors associated with the first video block and the second video block is greater than or equal to one,

the first video block and the second video block are each associated with one motion vector and the absolute value of the difference between vertical dimension

components of the motion vectors associated with the first video block and the second video block is greater than or equal to one,

the first video block and the second video block are each associated with two motion vectors and, for at least one pair of the motion vectors associated with the first video block and the second video block, the absolute value of the difference between horizontal dimension components of the motion vectors in the pair is greater than or equal to one, and

the first video block and the second video block are each associated with two motion vectors and, for at least one pair of the motion vectors associated with the first video block and the second video block, the absolute value of the difference between vertical dimension components of the motion vectors in the pair is greater than or equal to one; and

means for applying one or more deblocking filters to samples associated with the edge when the edge is associated with the first boundary strength value or the second boundary strength value, but not the third boundary strength value.

25. The video coding apparatus of claim **24**, wherein the first boundary strength value is equal to two, the second boundary strength value is equal to one, and the third boundary strength value is equal to zero.

26. The video coding apparatus of claim **24**, wherein the means for applying the one or more deblocking filters comprises:

means for applying a deblocking filter to chroma samples associated with the edge when the edge is associated with the first boundary strength value; and

means for applying a deblocking filter to luma samples associated with the edge when the edge is associated

with the first boundary strength value or the second boundary strength value.

27. The video coding apparatus of claim **26**,

wherein the video coding apparatus further comprises:

means for determining a first threshold value and a second threshold value based on a deblocking quantization parameter (QP) value and based on whether the first or the second boundary strength value is associated with the edge;

means for determining whether the first or the second threshold values is equal to zero; and

means for applying no deblocking filter to the luma samples associated with the edge when either the first or the second threshold value is equal to zero; and

wherein the means for applying the deblocking filter to the luma samples associated with the edge comprises means for applying the deblocking filter to the luma samples associated with the edge when the edge is associated with the first or second boundary strength value and neither the first or the second threshold value is equal to zero.

28. The video coding apparatus of claim **26**, wherein the means for applying the deblocking filter to the luma samples associated with the edge comprises:

means for using only a single multiplication operation to calculate a delta value, wherein the calculation comprises multiplying a step discontinuity across the edge by a constant; and

means for determining, based on the delta value, modified values of the luma samples associated with the edge, wherein the determining includes respectively adding and subtracting the delta value to luma samples of the first and second video blocks at the edge.

29. The video coding apparatus of claim **26**,
wherein the edge is eight luma samples in height or width, the eight luma samples divided equally into a first edge segment and a second edge segment; and
wherein the video coding apparatus further comprises:
means for determining, based on a third line of samples that crosses the edge, whether to apply a first deblocking filter or a second deblocking filter to luma samples associated with the first edge segment, wherein the first deblocking filter modifies up to three luma samples on either side of the edge and the second deblocking filter modifies up to two luma samples on either side of the edge; and
means for determining, based on a sixth line of samples that crosses the edge, whether to apply a third deblocking filter or a fourth deblocking filter to luma samples associated with the second edge segment, wherein the third deblocking filter modifies up to three luma samples on either side of the edge and the fourth deblocking filter modifies up to two luma samples on either side of the edge.

30. The video coding apparatus of claim **26**,
wherein the edge is a chroma edge and the video coding apparatus further comprises means for determining whether the chroma edge is associated with an I-slice, the chroma edge being associated with the I-slice if the chroma edge is associated with a CU that is in the I-slice, and
wherein the means for applying the deblocking filter to the chroma samples associated with the chroma edge comprises means for applying the deblocking filter to the chroma samples associated with the chroma edge only when the chroma edge is associated with the I-slice and the chroma edge is associated with the first boundary strength value.

31. The video coding apparatus of claim **26**, wherein the video coding apparatus further comprises:

means for identifying transform unit (TU) and prediction unit (PU) edges of an N×N grid, wherein a size of a luminance video block is 2N×2N or larger;

means for determining whether a chroma video block has a size larger than N samples by N samples;

wherein the means for applying a deblocking filter to chroma samples comprises:

means for applying, when the chroma video block has a size smaller than or equal to N samples by N samples, the deblocking filter to the chroma samples associated with the edge; and

means for turning, when the chroma video block has a size larger than N samples by N samples, the deblocking filter off for edges of the grid that are internal to the chroma video block.

32. The video coding apparatus of claim **24**, wherein the video coding apparatus comprises a video decoding apparatus further comprising:

means for receiving a bitstream;

means for generating a predicted video block and a residual video block based on syntax elements in the bitstream; and

means for generating the first video block based on the predicted video block and the residual video block.

33. The video coding apparatus of claim **24**, wherein the video coding apparatus comprises a video encoding apparatus comprising:

means for generating, after applying the one or more deblocking filters to the samples associated with the

edge, a predicted video block based at least in part on the samples associated with the edge; and

means for outputting a bitstream that includes one or more syntax elements whose values are based at least in part on the predicted video block.

34. A computer program product that comprises one or more non-transitory computer-readable storage media that store computer-executable instructions that, when executed, cause one or more processors to:

associate, without determining whether an edge between a first video block and a second video block is a coding unit (CU) edge, a first boundary strength value with the edge in response to determining that the first video block or the second video block is associated with an intra-predicted CU;

associate a second boundary strength value with the edge in response to determining that the first video block and the second video block are not associated with an intra-predicted CU and that the first video block or the second video block is associated with a transform unit (TU) with a non-zero transform coefficient level;

associate either the second boundary strength value or a third boundary strength value with the edge when the first video block and the second video block are not associated with an intra-predicted CU and the first video block and the second video block are not associated with a TU with a non-zero transform coefficient level, wherein the second boundary strength value is associated with the edge when one or more of the following additional conditions are satisfied:

the first video block and the second video block are associated with different reference pictures or are associated with different numbers of motion vectors,

the first video block and the second video block are each associated with one motion vector and the absolute value of the difference between horizontal dimension components of the motion vectors associated with the first video block and the second video block is greater than or equal to one,

the first video block and the second video block are each associated with one motion vector and the absolute value of the difference between vertical dimension components of the motion vectors associated with the first video block and the second video block is greater than or equal to one,

the first video block and the second video block are each associated with two motion vectors and, for at least one pair of the motion vectors associated with the first video block and the second video block, the absolute value of the difference between horizontal dimension components of the motion vectors in the pair is greater than or equal to one, and

the first video block and the second video block are each associated with two motion vectors and, for at least one pair of the motion vectors associated with the first video block and the second video block, the absolute value of the difference between vertical dimension components of the motion vectors in the pair is greater than or equal to one; and

apply one or more deblocking filters to samples associated with the edge when the edge is associated with the first boundary strength value or the second boundary strength value, but not the third boundary strength value.