CLAIMS

1. A deblocking method, for deblocking a sub-partitions boundary within a coding block in an image encoding or an image decoding, wherein the current coding block is coded in intra prediction mode and the current coding block is partitioned into sub-partitions by an intra sub-partition (ISP) tool and the sub-partitions comprising a first sub-partition and a second sub-partition which is adjacent to the first sub-partition, and if an intra sub-partitions split type of partitioning the current coding block into sub-partitions is horizontal, the method comprising:

- determining one or more of a first maximum filter length to be 1 for the first sub-partition or a second maximum filter length to be 1 for the second sub-partition, when a width of the first sub-partition is 4 samples or a width of the second sub-partition is 4 samples, or when a height of the first sub-partition is 4 samples or a height of the second sub-partition is 4 samples; and

performing one or more of:

- modifying, based at least in part upon the first maximum filter length, a value of up to one sample of the first sub-partition, wherein the up to one sample is obtained from a row or a column of the first sub-partition that is perpendicular to and the sub-partitions boundary between the first sub-partition and the second sub-partition and the up to one sample is adjacent to the sub-partitions boundary between the first sub-partition and the second sub-partition; or

- modifying, based at least in part upon the second maximum filter length, a value of up to one sample of the second sub-partition, wherein the up to one sample is obtained from a row or a column of the second sub-partition that is perpendicular to and the sub-partitions boundary between the first sub-partition and the second sub-partition and the up to one sample is adjacent to the sub-partitions boundary between the first sub-partition and the second sub-partition;

wherein the sub-partitions boundary between the first sub-partition and the second sub-partition is caused by the intra sub-partition tool, and the sub-partitions boundary between the first sub-partition and the second sub-partition is an internal boundary.

2. The method according to claim 1, wherein the up to one sample, which is obtained from the column of the first or second sub-partition that is perpendicular to and adjacent to the sub-partitions boundary between the first and second sub-partitions, is modified when a height of

~~the first or second sub-partition is 4 samples, and if an intra sub-partitions split type of partitioning the current coding block into sub-partitions is horizontal.~~

~~3. The method according to claim 1, wherein the up to one sample, which is obtained from the row of the first or second sub-partition that is perpendicular to and adjacent to the sub-partitions boundary between the first and second sub-partitions, is modified when a width of the first or second sub-partition is 4 samples, and if an intra sub-partitions split type of partitioning the current coding block into sub-partitions is vertical.~~

~~4~~2. The method according to ~~any one of~~ claim~~s~~ 1 ~~to 3~~, wherein, if an intra sub-partitions split type of partitioning the current coding block into sub-partitions is horizontal, the sub-partitions boundary between the first and second sub-partitions is a horizontal sub-partitions boundary~~; or~~

~~if the intra sub-partitions split type of partitioning the current coding block into sub-partitions is vertical, the sub-partitions boundary between the first and second sub-partitions is a vertical sub-partitions boundary~~.

~~5~~3. The method according to ~~any one of~~ claim~~s~~ 1 ~~to 3~~, wherein~~, if an intra sub-partitions split type of partitioning the current coding block into sub-partitions is vertical, the first sub-partition is located left of the second sub-partition and the second sub-partition is intra predicted based on a reconstructed value of the first sub-partition; and~~

_if the intra sub-partitions split type of partitioning the current coding block into sub-partitions is horizontal, the first sub-partition is located above the second sub-partition and the second sub-partition is intra predicted based on a reconstructed value of the first sub-partition.

~~6~~4. The method according to any one of claims 1 to ~~5~~3, wherein a number of sub-partitions in the current coding block is 2 or 4.

~~7~~5. The method according to any one of claims 1 to ~~6~~4, wherein

if a width of the current coding block is equal to 4 and a height of the coding block is equal to 8 or if the width of the current coding block is equal to 8 and the height of the current coding block is equal to 4, a number of sub-partitions in the current coding block is 2,

otherwise, the number of sub-partitions is 4.

~~8~~6. The method according to any one of claims 1 to ~~7~~5, wherein the up to one sample in the first or second sub-partition is modified even if the sub-partitions boundary between the first and second sub-partitions is not overlapped with an n x n sample grid, wherein n is an integer.

~~9~~7. The method according to any one of claims 1 to ~~7~~5, wherein the up to one sample in the first or second sub-partition is modified, only if the sub-partitions boundary between the first and second sub-partitions overlaps with an n x n sample grid, wherein n is an integer.

~~10~~8. The method according to claim ~~8~~6 or ~~9~~7, wherein n is 4 or 8.

~~11~~9. The method according to any one of the preceding claims, wherein samples of the sub-partitions are luma samples, or the samples of the sub-partitions are chroma samples.

~~12~~10. The method according to any one of the preceding claims, wherein the sub-partitions are rectangular transform block sub-partitions.

~~13~~11. The method according to any one of the preceding claims, wherein ~~an order of intra predicting the sub-partitions is from left to right, if an intra subpartitions split type of partitioning the current coding block into sub-partitions is vertical, or~~ wherein the order of intra predicting the sub-partitions is from top to bottom, if the intra subpartitions split type of partitioning the current coding block into sub-partitions is horizontal.

~~14. The method according to one of the preceding claims, wherein the current coding block is coded using an intra sub-partition (ISP) tool or the sub-partitions boundary is caused by an intra sub-partition (ISP) tool.~~

~~15~~12. A device for use in an image encoder or an image decoder, for deblocking sub-partitions boundary within a coding block, wherein a current coding block is coded in an intra prediction mode and the current coding block is partitioned into sub-partitions by an intra sub-partition (ISP) tool and the sub-partitions comprising a first sub-partition and a second sub-partition which is adjacent to the first sub-partition;
wherein if an intra sub-partitions split type of partitioning the current coding block into sub-partitions is horizontal, the device comprises a de-blocking filter configured to:

- determine ~~one or more of~~ a first maximum filter length to be 1 for the first sub-partition or a second maximum filter length to be 1 for the second sub-partition ~~when a width of the first sub-partition is 4 samples or a width of the second sub-partition is 4 samples~~, ~~or~~ when a height of the first sub-partition is 4 samples or a height of the second sub-partition is 4 samples; and

perform one or more of:

- modifying, based ~~at least in part~~ upon the first maximum filter length, a value of up to one sample of the first sub-partition, wherein the up to one sample is obtained from a ~~row or~~ column of the first sub-partition that is perpendicular to ~~and~~ the sub-partitions boundary between the first sub-partition and the second sub-partition and the up to one sample is adjacent to the sub-partitions boundary between the first sub-partition and the second sub-partition; or

- modifying, based ~~at least in part~~ upon the second maximum filter length, a value of up to one sample of the second sub-partition, wherein the up to one sample is obtained from a ~~row or~~ column of the second sub-partition that is perpendicular to the sub-partitions boundary between the first sub-partition and the second sub-partition and the up to one sample is ~~and~~ adjacent to the sub-partitions boundary between the first sub-partition and the second sub-partition;

wherein the sub-partitions boundary between the first sub-partition and the second sub-partition is caused by the intra sub-partition tool, and the sub-partitions boundary between the first sub-partition and the second sub-partition is an internal boundary.

~~16. The device according to claim 15, wherein the up to one sample, which is obtained from the column of the first or second sub-partition that is perpendicular to and adjacent to the sub-partitions boundary between the first and second sub-partitions, is modified when a height of the first or second sub-partition is 4 samples, and if an intra sub-partitions split type of partitioning the current coding block into sub-partitions is horizontal.~~

~~17. The device according to claim 15, wherein the up to one sample, which is obtained from the row of the first or second sub-partition that is perpendicular to and adjacent to the sub-partitions boundary between the first and second sub-partitions, is modified when a width of the first or second sub-partition is 4 samples, and if an intra sub-partitions split type of partitioning the current coding block into sub-partitions is vertical.~~

~~18~~13. The device according to ~~any one of~~ claim~~s~~ 12~~15 to 17~~, wherein if an intra sub-partitions split type of partitioning the current coding block into sub-partitions is horizontal, the sub-partitions boundary between the first and second sub-partitions is a horizontal sub-partitions boundary~~; or~~

~~if the intra sub-partitions split type of partitioning the current coding block into sub-partitions is vertical, the sub-partitions boundary between the first and second sub-partitions is a vertical sub-partitions boundary~~.

~~19~~14. The device according to ~~any one of~~ claim~~s~~ 12~~15 to 17~~, wherein ~~if an intra sub-partitions split type of partitioning the current coding block into sub-partitions is vertical, the first sub-partition is left to the second sub-partition and the second sub-partition is intra predicted based on a reconstructed value of the first sub-partition; and~~

if the intra sub-partitions split type of partitioning the current coding block into sub-partitions is horizontal, the first sub-partition is above the second sub-partition and the second sub-partition is intra predicted based on a reconstructed value of the first sub-partition.

~~20~~15. The device according to any one of claims ~~15~~12 to ~~19~~14, wherein a number of sub-partitions in the current coding block is 2 or 4.

~~21~~16. The device according to any one of claims ~~15~~12 to ~~20~~15, wherein

if a width of the current coding block is equal to 4 and a height of the coding block is equal to 8 and/or if the width of the current coding block is equal to 8 and the height of the current coding block is equal to 4, a number of sub-partitions in the current coding block is 2,

otherwise, the number of sub-partitions is 4.

~~22~~17. The device according to any one of claims ~~15~~12 to ~~21~~16, wherein the up to one sample in the first or second sub-partition is modified even if the sub-partitions boundary between the first and second sub-partitions is not overlapped with an n x n sample grid, wherein n is an integer.

~~23~~18. The device according to any one of claims ~~15~~12 to ~~21~~16, wherein the up to one sample in the first or second sub-partition is modified only if the sub-partitions boundary between the first and second sub-partitions overlaps with an n x n sample grid, wherein n is an integer.

~~24~~19. The device according to claim ~~22~~17 or ~~23~~18, wherein n is 4 or 8.

~~25~~20. The device according to any one of claims ~~15~~12 to ~~24~~19, wherein samples of the sub-partitions are luma samples, or the samples of the sub-partitions are chroma samples.

~~26~~21. The device according to any one of claims ~~15~~12 to ~~25~~20, wherein the sub-partitions are rectangular transform block sub-partitions.

~~27~~22. The device according to any one of claims ~~15~~12 to ~~26~~21, wherein ~~an order of intra predicting the sub-partitions is from left to right if an intra sub-partitions split type of partitioning the current coding block into sub-partitions is vertical, or~~ ~~wherein~~ the order of intra predicting the sub-partitions is from top to bottom, if the intra sub-partitions split type of partitioning the current coding block into sub-partitions is horizontal.

~~28. The device according to any one of claims 15 to 27, wherein the current coding block is coded using an intra sub-partition (ISP) tool or the sub-partitions boundary is caused by an intra sub-partition (ISP) tool.~~

~~29~~23. An encoder (20) comprising processing circuitry for carrying out the method according to any one of claims 1 to ~~14~~11.

~~30~~24. A decoder (30) comprising processing circuitry for carrying out the method according to any one of claims 1 to ~~14~~11.

~~31~~25. A computer-readable medium carrying a program code which, when executed by a computing device, causes the computing device to perform the method according to any one of claims 1 to ~~14~~11.

~~32~~26. A decoder (30), comprising:
one or more processors; and
a non-transitory computer-readable storage medium coupled to the processors and storing programming for execution by the processors, wherein the programming, when executed by the processors, configures the decoder to carry out the method according to any one of claims 1 to ~~14~~11.

~~33~~27. An encoder (20), comprising:

one or more processors; and

a non-transitory computer-readable storage medium coupled to the processors and storing programming for execution by the processors, wherein the programming, when executed by the processors, configures the encoder to carry out the method according to any one of claims 1 to ~~14~~11.