【CLAIMS】

1. A decoding method for generating a prediction block in intra prediction, the method comprising:

restoring a mode group indicator and a prediction mode index;

constructing a most probable mode (MPM) group including three intra prediction modes;

determining an intra prediction mode specified by the prediction mode index in the MPM group as an intra prediction mode of a current block if the mode group indicator indicates the MPM group, and deriving the intra prediction mode of the current block using the prediction mode index and the three intra prediction modes of the MPM group if the mode group indicator does not indicate the MPM group;

determining a size of the prediction block based on transform size information;

determining whether all reference pixels of the current block are available;

generating reference pixels if one or more reference pixels of the current block are unavailable;

adaptively filtering the reference pixels based on the intra prediction mode of the current block and a size of the current block; and

generating the prediction block using the reference pixels based on the intra prediction mode of the current block,

wherein when only one of a left intra prediction mode and an above intra prediction mode is available, the MPM group includes the available intra prediction mode and two additional intra prediction modes, and if the available intra prediction mode is one of two non-directional intra prediction modes, the two additional intra

prediction modes are the other of the two non-directional intra prediction modes and a vertical mode, and if the available intra prediction mode is one of directional intra prediction modes, the two additional intra prediction modes are two non-directional intra prediction modes, and

wherein if the mode group indicator does not indicate the MPM group, the prediction mode restoring unit derives the intra prediction mode of the current block by performing the ordered steps of:

increasing a value of the prediction mode index by one if the prediction mode index is equal to or greater than a first intra prediction mode of the MPM group;

increasing the value of the prediction mode index by one if the prediction mode index is equal to or greater than a second intra prediction mode of the MPM group;

increasing the value of the prediction mode index by one if the prediction mode index is equal to or greater than a third intra prediction mode of the MPM group; and

determining the value of the prediction mode index as the mode number of the intra prediction mode of the current block.

2. The method of claim 1, wherein the three intra prediction modes are reordered in the order of mode number to determine the first intra prediction mode, the second intra prediction mode and the third intra prediction mode such that wherein the first intra prediction mode is an intra prediction mode having lowest mode number, the second intra prediction mode is an intra prediction mode having

middle mode number and the third intra prediction mode is an intra prediction mode having highest mode number.

3. The method of claim 1, wherein when the left intra prediction mode is equal to the above intra prediction mode and the left intra prediction mode is a non-directional intra prediction mode, the MPM group includes the two non-directional intra prediction modes and a vertical mode.

4. The method of claim 1, wherein the two non-directional intra prediction modes are a DC mode and a planar mode.

5. The method of claim 1, wherein if the size of the current block is 4x4, the reference pixels are not filtered, and if the size of the current block is larger than 4x4, the number of intra prediction mode where the reference pixels are filtered increases as the size of the current block becomes larger.

6. The method of claim 1, wherein in the vertical mode, the prediction pixels of the prediction block which are adjacent to the left reference pixels are generated by using a vertical reference pixel and a variance between a corner pixel and a left neighboring pixel.

7. An encoding method for generating a prediction block in intra prediction, the method comprising:

generating a mode group indicator and a prediction mode index;

constructing a most probable mode (MPM) group including three intra prediction modes;

determining whether all reference pixels of the current block are available;

generating reference pixels if one or more reference pixels of the current block are unavailable;

adaptively filtering the reference pixels based on the intra prediction mode of the current block and a size of the current block; and

generating the prediction block using the reference pixels based on the intra prediction mode of the current block,

wherein when only one of a left intra prediction mode and an above intra prediction mode is available, the MPM group includes the available intra prediction mode and two additional intra prediction modes, and if the available intra prediction mode is one of two non-directional intra prediction modes, the two additional intra prediction modes are the other of the two non-directional intra prediction modes and a vertical mode, and if the available intra prediction mode is one of directional intra prediction modes, the two additional intra prediction modes are two non-directional intra prediction modes, and

wherein, when an intra prediction mode of a current block belongs to the MPM group, the mode group indicator indicates the MPM group and the prediction mode index indicates the intra prediction mode of a current block among the three intra prediction modes in the MPM group, and when the intra prediction mode of the current block does not belong to the MPM group, the mode group indicator does indicate the MPM group and the prediction mode index specifies the intra prediction mode of the current block among intra prediction modes besides the three intra prediction modes in the MPM group by performing the ordered steps of:

increasing a value of the prediction mode index by one if the prediction mode index is equal to or greater than a first intra prediction mode of the MPM group;

increasing the value of the prediction mode index by one if the prediction mode index is equal to or greater than a second intra prediction mode of the MPM group;

increasing the value of the prediction mode index by one if the prediction mode index is equal to or greater than a third intra prediction mode of the MPM group; and

determining the value of the prediction mode index as the mode number of the intra prediction mode of the current block.

8. The method of claim 7, wherein the three intra prediction modes are reordered in the order of mode number to determine the first intra prediction mode, the second intra prediction mode and the third intra prediction mode such that wherein the first intra prediction mode is an intra prediction mode having lowest mode number, the second intra prediction mode is an intra prediction mode having middle mode number and the third intra prediction mode is an intra prediction mode having highest mode number.

9. The method of claim 7, wherein when the left intra prediction mode is equal to the above intra prediction mode and the left intra prediction mode is a non-directional intra prediction mode, the MPM group includes the two non-directional intra prediction modes and a vertical mode.

10. A computer-readable storage medium storing encoded video information, comprising:

a bit stream stored in the medium, the bit stream comprising entropy-encoded information on a mode group indicator and a prediction mode index for generating a prediction block in intra prediction,

wherein the mode group indicator and the prediction mode index specify an intra prediction mode of a current block using a most probable mode (MPM) group which includes three intra prediction modes,

wherein, when an intra prediction mode of a current block belongs to the MPM group, the mode group indicator indicates the MPM group and the prediction mode index indicates the intra prediction mode of a current block among the three intra prediction modes in the MPM group, and when the intra prediction mode of the current block does not belong to the MPM group, the mode group indicator does indicate the MPM group and the prediction mode index specifies the intra prediction mode of the current block among intra prediction modes besides the three intra prediction modes in the MPM group by performing the ordered steps of:

increasing a value of the prediction mode index by one if the prediction mode index is equal to or greater than a first intra prediction mode of the MPM group;

increasing the value of the prediction mode index by one if the prediction mode index is equal to or greater than a second intra prediction mode of the MPM group;

increasing the value of the prediction mode index by one if the prediction mode index is equal to or greater than a third intra prediction mode of the MPM group; and

determining the value of the prediction mode index as the mode number of the intra prediction mode of the current block.

wherein when only one of a left intra prediction mode and an above intra prediction mode is available, the MPM group includes the available intra prediction mode and two additional intra prediction modes, and if the available intra prediction mode is one of two non-directional intra prediction modes, the two additional intra prediction modes are the other of the two non-directional intra prediction modes and a vertical mode, and if the available intra prediction mode is one of directional intra prediction modes, the two additional intra prediction modes are two non-directional intra prediction modes, and

wherein the prediction block is generated based on the intra prediction mode of the current block using reference pixels of the current block, and when one or more reference pixels of the current block are unavailable, reference pixels are generated.