【CLAIMS】

1. An image decoding method, the method comprising:

deriving luma intra prediction mode and chroma intra prediction mode, wherein the luma intra prediction mode is derived by using a prediction mode index, a mode group indicator, and an MPM (Most Probable Mode) group including three intra prediction modes;

determining a size of a luma transform unit and a size of a chroma transform unit;

generating a reference pixel when at least one of reference pixels is unavailable;

adaptively filtering a reference pixel of a current luma block based on the luma intra prediction mode and the size of luma transform unit;

generating prediction blocks of a current chroma block and the current luma block using the adaptively filtered reference pixel;

generating residual blocks of the current chroma block and the current luma block; and

generating a reconstructed block by adding the residual blocks and the prediction blocks,

wherein, among the three intra prediction modes included in the MPM group, an intra prediction mode indicated by the prediction mode index is set as the luma intra prediction mode when the mode group indicator indicates the MPM group,

wherein, when the mode group indicator does not indicate the MPM group, the luma intra prediction mode is determined by sequentially comparing the prediction mode index and the three intra prediction modes in the MPM group,

wherein, when only one of left and above intra prediction modes of a current luma prediction unit is available, the MPM group includes the available intra prediction mode and two additional intra prediction modes determined by the available intra prediction mode, and

wherein, when the mode group indicator does not indicate the MPM group, the luma intra prediction mode is determined by comparing the prediction mode index and the three intra prediction modes in the MPM group in such a way that the prediction mode index is compared firstly with lowest mode among the three intra prediction modes in the MPM group and compared lastly with highest mode among the three intra prediction modes in the MPM group.

2. The method of claim 1, wherein the chroma intra prediction mode is same as the luma intra prediction mode when the chroma intra prediction mode is DM mode.

3. The method of claim 1, wherein, when the available intra prediction mode is a directional mode, DC mode and planar mode are set as the two additional intra prediction modes.

4. The method of claim 1, wherein, when the available intra prediction mode is a non-directional mode, vertical mode and remaining one of non-directional mode are set as the two additional intra prediction modes.

5. The method of claim 1, wherein if a current chroma prediction unit is larger than the chroma transform unit, the chroma intra prediction mode is used for generating prediction block of other block within the chroma prediction unit.

6. The method of claim 1, wherein, when the mode group indicator does not indicate the MPM group, if the prediction mode index is equal to or larger than the intra prediction mode, a value of the prediction mode index is increased by one.

7. An image encoding method, the method comprising:

determining luma intra prediction mode and chroma intra prediction mode;

generating a prediction mode index and a mode group indicator, wherein the luma intra prediction mode is specified by using the prediction mode index, the mode

group indicator, and an MPM (Most Probable Mode) group including three intra prediction modes;

determining a size of a luma transform unit and a size of a chroma transform unit;

generating a reference pixel when at least one of reference pixels is unavailable;

adaptively filtering a reference pixel of a current luma block based on the luma intra prediction mode and the size of luma transform unit;

generating prediction blocks of a current chroma block and the current luma block using the adaptively filtered reference pixel;

generating residual blocks of the current chroma block and the current luma block; and

generating a reconstructed block by adding the residual blocks and the prediction blocks,

wherein, among the three intra prediction modes included in the MPM group, an intra prediction mode indicated by the prediction mode index is set as the luma intra prediction mode when the mode group indicator indicates the MPM group,

wherein, when the mode group indicator does not indicate the MPM group, the luma intra prediction mode is determined by sequentially comparing the prediction mode index and the three intra prediction modes in the MPM group,

wherein, when only one of left and above intra prediction modes of a current luma prediction unit is available, the MPM group includes the available intra prediction mode and two additional intra prediction modes determined by the available intra prediction mode, and

wherein, when the mode group indicator does not indicate the MPM group, the luma intra prediction mode is determined by comparing the prediction mode index and the three intra prediction modes in the MPM group in such a way that the prediction mode index is compared firstly with lowest mode among the three intra

prediction modes in the MPM group and compared lastly with highest mode among the three intra prediction modes in the MPM group.

8. A non-transitory computer-readable storage medium storing video information causing a decoding apparatus to carry out the image decoding method of claim 1.