

CLAIMS

1. A method for colour component prediction, applicable for an encoder and comprising:

determining prediction parameters of a current block, the prediction parameters comprising a prediction mode parameter and a size parameter of the current block;

when the prediction mode parameter indicates that a Matrix-based Intra Prediction (MIP) mode is adopted to determine an intra prediction value of the current block, determining an MIP weight matrix of the current block, a shift factor of the current block and an MIP input sample matrix of the current block, wherein the shift factor of the current block is a fixed constant shift factor; and

determining the intra prediction value of the current block according to the MIP weight matrix, the shift factor and the MIP input sample matrix,

wherein the MIP weight matrix of the current block is at least determined according to a block size index value of the current block and the block size index value of the current block is determined according to the size parameter of the current block.

2. The method of claim 1, wherein a value of the fixed constant shift factor is equal to 6.

3. The method of claim 1, wherein determining the block size index value of the current block according to the size parameter of the current block comprises:

when both a width and height of the current block are equal to 4, setting the block size index value of the current block equal to 0;

when both the width and height of the current block are equal to 8 or one of the width and height of the current block is equal to 4, setting the block size index value of the current block equal to 1; or

when both the width and height of the current block do not meet the above conditions, setting the block size index value of the current block equal to 2.

4. The method of claim 1, wherein determining the intra prediction value of the current block according to the MIP weight matrix, the shift factor and the MIP input sample matrix comprises:

performing matrix multiplication processing on the MIP input sample matrix, the MIP weight matrix and the shift factor by use of a preset calculation model to obtain the MIP-based prediction block of the current block; and

performing filtering processing on the MIP-based prediction block to obtain the intra prediction value of the current block, the MIP-based prediction block comprising prediction values of at least part of pixel positions in the current block.

5. A method for colour component prediction, applicable for a decoder and comprising:

parsing a bitstream to acquire prediction parameters of a current block, the prediction parameters comprising a prediction mode parameter and a size parameter of the current block;

when the prediction mode parameter indicates that a Matrix-based Intra Prediction (MIP) mode is adopted to determine an intra prediction value of the current block, determining an MIP weight matrix of the current block, a shift factor of the current block and an MIP input sample matrix of the current block, wherein the shift factor of the current block is a fixed constant shift factor; and

determining the intra prediction value of the current block according to the MIP weight matrix, the shift factor and the MIP input sample matrix,

wherein the MIP weight matrix of the current block is determined at least according to a block size index value of the current block and the block size index value of the current block is determined according to the size parameter of the current block.

6. The method of claim 5, wherein a value of the fixed constant shift factor is equal to 6.

7. The method of claim 5, wherein determining the block size index value of the current block according to the size parameter of the current block comprises:

when both a width and height of the current block are equal to 4, setting the block size index value of the current block equal to 0;

when both the width and height of the current block are equal to 8 or one of the width and height of the current block is equal to 4, setting the block size index value of the current block equal to 1; or

when both the width and height of the current block do not meet the above conditions, setting the block size index value of the current block equal to 2.

8. The method of claim 5, wherein determining the intra prediction value of the current block according to the MIP weight matrix, the shift factor and the MIP input sample matrix comprises:

performing matrix multiplication processing on the MIP input sample matrix, the MIP weight matrix and the shift factor by use of a preset calculation model to obtain the MIP-based prediction block of the current block; and

performing filtering processing on the MIP-based prediction block to obtain the intra prediction value of the current block, the MIP-based prediction block comprising predicted values of at least part of pixel positions in the current block.

9. A encoder, comprising a memory and a processor, wherein

the memory is configured to store computer programs capable of running in the

processor; and

the processor is configured to run the computer programs to:

determine prediction parameters of a current block, the prediction parameters comprising a prediction mode parameter and a size parameter of the current block;

when the prediction mode parameter indicates that a Matrix-based Intra Prediction (MIP) mode is adopted to determine an intra prediction value of the current block, determine an MIP weight matrix of the current block, a shift factor of the current block and an MIP input sample matrix of the current block, wherein the shift factor of the current block is a fixed constant shift factor; and

determine the intra prediction value of the current block according to the MIP weight matrix, the shift factor and the MIP input sample matrix,

wherein the MIP weight matrix of the current block is at least determined according to a block size index value of the current block and the block size index value of the current block is determined according to the size parameter of the current block..

10. The encoder of claim 9, wherein a value of the fixed constant shift factor is equal to 6.

11. The encoder of claim 9, wherein the processor is further configured to run the computer programs to:

set the block size index value of the current block equal to 0 when both a width and height of the current block are equal to 4;

set the block size index value of the current block equal to 1 when both the width and height of the current block are equal to 8 or one of the width and height of the current block is equal to 4; or

set the block size index value of the current block equal to 2 when both the width and

height of the current block do not meet the above conditions.

12. The encoder of claim 11, wherein the processor is further configured to run the computer programs to:

perform matrix multiplication processing on the MIP input sample matrix, the MIP weight matrix and the shift factor by use of a preset calculation model to obtain the MIP-based prediction block of the current block; and

perform filtering processing on the MIP-based prediction block to obtain the intra prediction value of the current block, the MIP-based prediction block comprising prediction values of at least part of pixel positions in the current block.

13. A decoder, comprising a memory and a processor, wherein

the memory is configured to store computer programs capable of running in the processor; and

the processor is configured to run the computer programs to:

parse a bitstream to acquire prediction parameters of a current block, the prediction parameters comprising a prediction mode parameter and a size parameter of the current block;

when the prediction mode parameter indicates that a Matrix-based Intra Prediction (MIP) mode is adopted to determine an intra prediction value of the current block, determine an MIP weight matrix of the current block, a shift factor of the current block and an MIP input sample matrix of the current block, wherein the shift factor of the current block is a constant shift factor; and

determine the intra prediction value of the current block according to the MIP weight matrix, the shift factor and the MIP input sample matrix,

wherein the MIP weight matrix of the current block is determined at least according to

a block size index value of the current block and the block size index value of the current block is determined according to the size parameter of the current block.

14. The decoder of claim 13, wherein a value of the fixed constant shift factor is equal to 6.

15. The decoder of claim 13, wherein the processor is further configured to run the computer programs to:

set the block size index value of the current block equal to 0 when both a width and height of the current block are equal to 4;

set the block size index value of the current block equal to 1 when both the width and height of the current block are equal to 8 or one of the width and height of the current block is equal to 4; or

set the block size index value of the current block equal to 2 when both the width and height of the current block do not meet the above conditions.

16. The decoder of claim 13, wherein the processor is further configured to run the computer programs to:

perform matrix multiplication processing on the MIP input sample matrix, the MIP weight matrix and the shift factor by use of a preset calculation model to obtain the MIP-based prediction block of the current block; and

perform filtering processing on the MIP-based prediction block to obtain the intra prediction value of the current block, the MIP-based prediction block comprising predicted values of at least part of pixel positions in the current block.

17. A computer-readable storage medium, having a computer program and a bitstream stored thereon, wherein the computer program, when executed by a processor, enables the processor to perform the method of any one of claims 1 to 4 to generate the bitstream.