

decode the current block, the method further includes:

updating the value of LEFT with the value of the optimal intra prediction mode of the left adjacent picture block, when the optimal intra prediction mode of the left adjacent picture block belongs to non-MIP modes; and

- 5 updating the value of ABOVE with the value of the optimal intra prediction mode of the above adjacent picture block, when the above adjacent picture block is in the same CTU as the current block and the optimal intra prediction mode of the above adjacent picture block belongs to non-MIP modes.

10 That is, when the optimal intra prediction mode of the left adjacent picture block belongs to non-MIP modes, there is no need to perform mapping, and the value of LEFT may be updated directly with the value of the optimal intra prediction mode of the left adjacent picture block. Similarly, when the above adjacent picture block is in the same CTU as the current block and the optimal intra prediction mode of the above adjacent picture block belongs to non-MIP modes, there is no need to perform mapping, and the value of ABOVE may be updated directly
15 with the value of the optimal intra prediction mode of the above adjacent picture block.

Taking the case as an example where the first mode is the Planar mode, FIG. 11 is a schematic flow chart of an alternative example of acquiring LEFT and ABOVE according to an embodiment of the present application. As shown in FIG. 11, the method may include:

- 20 S1101, initializing LEFT and ABOVE as default value 0, LEFT=0, ABOVE=0, and executing S1102;

S1102, determining whether the left adjacent block (equivalent to the above left adjacent picture block) exists, if the left adjacent block exists, executing S1103, and if the left adjacent block does not exist, executing S1106;

- 25 S1103, determining whether the optimal mode (equivalent to the above optimal intra prediction mode) of the left adjacent block is a MIP mode, if so, executing S1105, otherwise, executing S1104;

S1104, updating the value of LEFT with the value of the left adjacent block (equivalent to the above left adjacent picture block) at which the optimal mode is a non-MIP mode, and

executing S1106;

S1105, updating the value of LEFT to 0, and executing S1106;

S1106, determining whether the above adjacent block exists, and determining whether the above adjacent block is in the same CTU as the current block (equivalent to the above current
5 block), if the above adjacent block exists and is in the same CTU as the current block, executing S1107, otherwise, ending.

S1107, determining whether the optimal mode of the above adjacent block is a MIP mode, if so, executing S1108, and if not, executing S1109;

S1108, updating the value of ABOVE to 0, and ending.

10 S1109, updating the value of ABOVE with the value of the optimal mode of the above adjacent block, and ending.

Since the default values of LEFT and ABOVE are 0 in the construction process of the MPM list, FIG. 11 may be modified to obtain FIG. 12. FIG. 12 is a schematic flow chart of another alternative example of acquiring LEFT and ABOVE according to an embodiment of the
15 present application. As shown in FIG. 12, the method may include:

S1201, initializing LEFT and ABOVE to the default value 0, LEFT=0, ABOVE=0, and executing S1202;

S1202, determining whether the left adjacent block exists, if the left adjacent block exists, executing S1203, and if the left adjacent block does not exist, executing S1205;

20 S1203, determining whether the optimal mode of the left adjacent block is a MIP mode, if so, executing S1205, and if not, executing S1204;

S1204, updating the value of LEFT with the value of the optimal mode of the left adjacent block, and executing S1205;

S1205, determining whether the above adjacent block exists, and determining whether the
25 above adjacent block is in the same CTU as the current block, if the above adjacent block exists and is in the same CTU as the current block, executing S1206, otherwise, ending.

S1206, determining whether the optimal mode of the above adjacent block is a MIP mode, if so, ending, and if not, executing S1207;

modes, prohibit mapping and maintain the value of non-MIP mode LEFT corresponding to the optimal intra prediction mode of the left adjacent picture block as a default value;

when the above adjacent picture block is in the same CTU as the current block and the optimal intra prediction mode of the above adjacent picture block belongs to MIP modes,
5 prohibit mapping and maintain the value of non-MIP mode ABOVE corresponding to the optimal intra prediction mode of the above adjacent picture block as a default value; and

construct a MPM list according to the value of LEFT and the value of ABOVE, to encode the current block.

Further, the first mapping module 152 is also specifically configured to:

10 after acquiring the left adjacent picture block and the above adjacent picture block of the current block from encoded picture blocks of the current block, and before constructing a MPM list according to the value of LEFT and the value of ABOVE to encode the current block, when the optimal intra prediction mode of the left adjacent picture block belongs to non-MIP modes, update the value of LEFT with the value of the optimal intra prediction mode of the left
15 adjacent picture block; and

when the above adjacent picture block is in the same CTU as the current block and the optimal intra prediction mode of the above adjacent picture block belongs to non-MIP modes, update the value of ABOVE with the value of the optimal intra prediction mode of the above adjacent picture block.

20 Further, the second mapping module 153 is specifically configured to:

acquire the left adjacent picture block and the above adjacent picture block of the current block from encoded picture blocks of the current block;

when the optimal intra prediction mode of the left adjacent picture block belongs to non-MIP modes, map the optimal intra prediction mode of the left adjacent picture block to a
25 second MIP mode, and update the value of the MIP mode LEFT_MIP corresponding to the optimal intra prediction mode of the left adjacent picture block with the value of the second MIP mode;

when the above adjacent picture block is in the same CTU as the current block and the

MIP modes, and the type of the left adjacent picture block is different from the type of the current block, determine the second MIP mode according to the type of the above adjacent picture block and the type of the current block, and update the value of ABOVE_MIP with the value of the second MIP mode.

5 FIG. 18 is a schematic structural diagram of another alternative decoder according to an embodiment of the present application. As shown in FIG. 18, the decoder 1800 according to an embodiment of the present application may further include a processor 181 and a storage medium 182 storing instructions executable by the processor 181. The storage medium 182 relies on the processor 181 to execute an operation through a communication bus 183, and
10 when the instructions are executed by the processor 181, the mapping method in one or more of the above embodiments is executed.

It should be noted that in practical application, various components in the decoder are coupled together through the communication bus 183. It may be understood that the communication bus 183 is used for implementing connection and communication between
15 these components. The communication bus 183 further includes a power bus, a control bus, and a status signal bus, in addition to a data bus. However, for the sake of clear description, various buses are marked as the communication bus 183 in FIG. 18.

An embodiment of the present application provides a computer storage medium in which executable instructions are stored. When the executable instructions are executed by one or
20 more processors, the processors execute the mapping method in one or more of the above embodiments.

It may be understood that the memory in the embodiments of the present application may be a transitory memory or a non-transitory memory, or may include both a transitory memory and a non-transitory memory. The non-transitory memory may be a Read-Only Memory
25 (ROM), a Programmable ROM (PROM), an Erasable PROM (EPROM), an Electrically EPROM (EEPROM), or a flash memory. The transitory memory may be a Random Access Memory (RAM) which serves as an external cache. By way of exemplary but not restrictive illustrations, many forms of RAMs are available, such as a Static RAM (SRAM), a Dynamic RAM (DRAM), a Synchronous DRAM (SDRAM), a Double Data Rate SDRAM

What is claimed is:

1. A method for decoding a picture, applied to a decoder, wherein the method comprises:
determining (S1001) an intra prediction mode for a current block;
when the intra prediction mode is a Matrix-based Intra Prediction (MIP) mode, setting the
5 MIP mode to be the intra prediction mode for luma component of the current block;
mapping (S1002) the MIP mode to a first non-MIP mode; wherein the first non-MIP
mode is used for determining the intra prediction mode for chroma component of the current
block, the first non-MIP mode is one of preset non-MIP modes, and the non-MIP modes
comprise at least one of a direct current (DC) mode, a planar mode and an angular prediction
10 mode;
using the intra prediction mode for the luma component and the intra prediction mode for
the chroma component to decode the current block.
2. The method according to claim 1, wherein the first non-MIP mode is the planar mode.
3. The method according to claim 1 or 2, wherein determining the intra prediction mode
15 for the current block comprises:
decoding prediction mode information signalled in a bitstream, wherein the prediction
mode information indicates the intra prediction mode for the current block.
4. The method according to claim 1 or 2, wherein the first non-MIP mode is used as a
parameter for determining the intra prediction mode for chroma component of the current
20 block.
5. The method according to claim 1 or 2, wherein the first non-MIP mode is determined as
the intra prediction mode for chroma component of the current block.
6. A decoder, comprises:
a determining module (171) configured to determine an intra prediction mode for a
25 current block;
a mapping module (172, 173) configured to,
when the intra prediction mode is a Matrix-based Intra Prediction (MIP) mode, set the

MIP mode to be the intra prediction mode for luma component of the current block;

map the MIP mode to a first non-MIP mode; wherein the first non-MIP mode is used for determining the intra prediction mode for chroma component of the current block, the first non-MIP mode is one of preset non-MIP modes, and the non-MIP modes comprise at least one
5 of a direct current (DC) mode, a planar mode and an angular mode; and

use the intra prediction mode for the luma component and the intra prediction mode for the chroma component to decode the current block.

7. The decoder according to claim 6, wherein the first non-MIP mode is the planar mode.

8. The decoder according to claim 6 or 7, wherein the determining module (171) is
10 configured to: decode prediction mode information signalled in a bitstream, wherein the prediction mode information indicates the intra prediction mode for the current block.

9. The decoder according to claim 6 or 7, wherein the first non-MIP mode is used as a parameter for determining the intra prediction mode for chroma component of the current block.

15 10. The decoder according to claim 6 or 7, the first non-MIP mode is determined as the intra prediction mode for chroma component of the current block.

11. A method for encoding a picture, applied to an encoder, wherein the method comprises:

determining (S1001) an intra prediction mode for a current block;

20 when the intra prediction mode is a Matrix-based Intra Prediction (MIP) mode, setting the MIP mode to be the intra prediction mode for luma component of the current block;

mapping (S1002) the MIP mode to a first non-MIP mode; wherein the first non-MIP mode is used for determining the intra prediction mode for chroma component of the current block, the first non-MIP mode is one of preset non-MIP modes, and the non-MIP modes
25 comprise at least one of a direct current (DC) mode, a planar mode and an angular prediction mode;

using (S1003) the intra prediction mode for the luma component and the intra prediction mode for the chroma component to encode the current block.

12. The method according to claim 11, wherein the first non-MIP mode is the planar mode.

13. The method according to claim 11 or 12, comprising:

5 writing prediction mode information into a bitstream, wherein the prediction mode information indicates the intra prediction mode for the current block.

14. The method according to claim 11 or 12, wherein the first non-MIP mode is used as a parameter for determining the intra prediction mode for chroma component of the current block.

10 15. The method according to claim 11 or 12, wherein the first non-MIP mode is determined as the intra prediction mode for chroma component of the current block.

16. An encoder, comprises:

a determining module (151) configured to determine an intra prediction mode for a current block;

a mapping module (152, 153) configured to:

15 when the intra prediction mode is a Matrix-based Intra Prediction (MIP) mode, set the MIP mode to be the intra prediction mode for luma component of the current block;

20 map the MIP mode to a first non-MIP mode; wherein the first non-MIP mode is used for determining the intra prediction mode for chroma component of the current block, the first non-MIP mode is one of preset non-MIP modes, and the non-MIP modes comprise at least one of a direct current (DC) mode, a planar intra prediction mode and an angular prediction mode;

use the intra prediction mode for the luma component and the intra prediction mode for the chroma component to encode the current block.

17. The encoder according to claim 16, wherein the first non-MIP mode is the planar mode.

25 18. The encoder according to claim 16 or 17, wherein the determining module (151) is configured to: write prediction mode information into a bitstream, wherein the prediction mode information indicates the intra prediction mode for the current block.

19. The encoder according to claim 16 or 17, wherein the first non-MIP mode is used as a parameter for determining the intra prediction mode for chroma component of the current block.

5 20. The encoder according to claim 16 or 17, the first non-MIP mode is determined as the intra prediction mode for chroma component of the current block.

21. A non-transitory computer readable storage medium in which executable instructions are stored, when the executable instructions are executed by one or more processors, the one or more processors executing the mapping method according to any one of claims 1 to 5 and 11 to 15.

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