

STUDY GROUP 16 Question 6 Video Coding Experts Group (VCEG) 30th Meeting:
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Summary of Invention

Technical Problem

[0008]

However, increasing selectable transform unit size types also increases the number of available quantization matrices. Increasing amount of codes of quantization matrices may degrade coding efficiency. The coding efficiency may degrade more remarkably if the number of quantization matrices which can be designated for each transform unit size changes from one to more.

[0009]

~~Embodiments of the present invention provide~~~~The technology according to the present disclosure aims at providing~~ an image processing device and an image processing method capable of suppressing an increase in amount of codes due to an increase in the number of quantization matrices.

Solution to Problem

[0009a]

~~According to one aspect, there is provided an image processing apparatus comprising:~~
~~circuitry configured to: select, from a plurality of transform units with different sizes, a 16x16 transform unit used for orthogonal transformation of image data to be encoded; and quantize transform coefficient data generated by orthogonally transforming the image data based on the 16x16 transform unit, by using a 16x16 quantization matrix based on an 8x8 quantization matrix.~~

[0009b]

~~According to another aspect, there is provided an image processing method comprising: selecting, from a plurality of transform units with different sizes, a 16x16 transform unit used for orthogonal transformation of image data to be encoded; and quantizing transform coefficient data generated by orthogonally transforming the image data based on the 16x16 transform unit, by using a 16x16 quantization matrix based on an 8x8 quantization matrix.~~

[0010]

According to an embodiment of the present disclosure, there is provided an image processing device including a selection section configured to select, from a plurality of transform units with different sizes, a transform unit used for inverse orthogonal transformation of image data to be decoded, a generation section configured to generate, from a first quantization matrix corresponding to a transform unit for a first size, a second quantization matrix corresponding to a transform unit for a second size, and an inverse quantization section configured to inversely quantize transform coefficient data for the image data using the second quantization matrix generated by the generation section when the selection section selects the transform unit for the second size.

[0011]

The image processing device can be realized typically as an image decoding device for decoding an image.

[0024]

The image processing device can be realized typically as an image encoding device for encoding an image.

[0025]

Further, according to another embodiment of the present disclosure, there is provided an image processing method including selecting, from a plurality of transform units with different sizes, a transform unit used for orthogonal transformation of image data to be encoded, quantizing transform coefficient data generated by orthogonally transforming the image data based on a selected transform unit, by using a quantization matrix corresponding to the selected transform unit, and encoding information for generating a second quantization matrix corresponding to a transform unit for a second size from a first quantization matrix corresponding to a transform unit for a first size.

Advantageous Effects of Invention

[0026]

As described above, the image processing device and the image processing method according to embodiments of the present invention~~the present disclosure~~ can suppress in an increase in the code amount due to an increase in the number of quantization matrices.

Brief Description of Drawings

[0027]

[Fig. 1] Fig. 1 is a block diagram illustrating a hardware configuration of an image encoding device according to an embodiment.

[Fig. 2] Fig. 2 is a block diagram illustrating a detailed configuration of an orthogonal transformation and quantization section according to an embodiment.

[Fig. 3] Fig. 3 is a block diagram illustrating a more detailed configuration of a matrix processing section according to an embodiment.

[Fig. 4] Fig. 4 is an explanatory diagram illustrating information inserted into a sequence parameter set according to an embodiment.

[Fig. 5] Fig. 5 is an explanatory diagram illustrating information inserted into a