CLAIMS:

1. An image processing apparatus comprising:

circuitry configured to:

select, from a plurality of transform units with different sizes, a 32x32 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 32x32 transform unit by using a 32x32 quantization matrix based on an 8x8 quantization matrix.

2. The image processing apparatus according to claim 1, wherein the 32x32 quantization matrix is generated from the 8x8 quantization matrix.

3. The image processing apparatus according to claim 2, wherein the 32x32 quantization matrix is generated by duplicating elements of the 8x8 quantization matrix.

4. The image processing apparatus according to claim 3, wherein the 32x32 quantization matrix is generated by duplicating one of a first element and a second element as an element between the first element and the second element adjacent to each other in the 8x8 quantization matrix.

5. The image processing apparatus according to claim 4, wherein the circuitry is configured to transform the image data to generate the transform coefficient data on the basis of the 32x32 transform unit.

6. The image processing apparatus according to claim 5, wherein the circuitry is configured to encode the quantized transform coefficient data to generate an encoded stream.

7. The image processing apparatus according to claim 6, wherein the circuitry is configured to capture an image and generate the image data from the image.

8. The image processing apparatus according to claim 7, wherein the circuitry is configured to store the encoded stream.

9. The image processing apparatus according to claim 7, wherein the circuitry is configured multiplex the encoded stream with an audio stream to generate a multiplex stream.

10. The image processing apparatus according to claim 9, wherein the circuitry is configured to:

generate a transmission signal by encoding and modulating the multiplex stream; and

transmit the transmission signal.

11. An image processing method comprising:

selecting, from a plurality of transform units with different sizes, a 32x32 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 32x32 transform unit by using a 32x32 quantization matrix based on an 8x8 quantization matrix.

12. The method according to claim 11, wherein the 32x32 quantization matrix is generated from the 8x8 quantization matrix.

13. The method according to claim 12, wherein the 32x32 quantization matrix is generated by duplicating elements of the 8x8 quantization matrix.

14. The method according to claim 13, wherein the 32x32 quantization matrix is generated by duplicating one of a first element and a second element as an element between the first element and the second element adjacent to each other in the 8x8 quantization matrix.

15. The method according to claim 14, further comprising transforming the image data to generate the transform coefficient data on the basis of the 32x32 transform unit.

16. The method according to claim 15, further comprising encoding the quantized transform coefficient data to generate an encoded stream.

17. The method according to claim 16, further comprising capturing an image and generate the image data from the image.

18. The method according to claim 17, further comprising storing the encoded stream.

19. The method according to claim 17, further comprising multiplexing the encoded stream with an audio stream to generate a multiplex stream.

20. The method according to claim 19, further comprising:

generating a transmission signal by encoding and modulating the multiplex stream; and

transmitting the transmission signal.

CLAIMS

1. An image processing apparatus comprising:

circuitry configured to:

select, from a plurality of transform units with different sizes, a 32 x 32 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 32 x 32 transform unit by using a 32 x 32 quantization matrix based on an 8 x 8 quantization matrix,

wherein the circuitry is configured to generate the 32 x 32 quantization matrix b duplicating one of a first element and a second element adjacent to each other in the 8 x 8 quantization matrix as an element between the first element and the second element in the 32 x 32 quantization matrix.

2. The image processing apparatus according to claim 1, wherein the circuitry is configured to transform the image data to generate the transform coefficient data on the basis of the 32 x 32 transform unit.

3. The image processing apparatus according to claim 2, wherein the circuitry is configured to encode the quantized transform coefficient data to generate an encoded stream.

4. The image processing apparatus according to claim 3, wherein the circuitry is configured to capture an image and generate the image data from the image.

5. The image processing apparatus according to claim 4, wherein the circuitry is configured to store the encoded stream.

6. The image processing apparatus according to claim 4, wherein the circuitry is configured multiplex the encoded stream with an audio stream to generate a multiplex stream.

7. The image processing apparatus according to claim 6, wherein the circuitry is configured to:

generate a transmission signal by encoding and modulating the multiplex stream; and

transmit the transmission signal.

8. An image processing method comprising:

selecting, by circuitry of an image processing apparatus and from a plurality of transform units with different sizes, a 32 x 32 transform unit used for orthogonal transformation of image data to be encoded; and

quantizing, by the circuitry, transform coefficient data generated by orthogonally transforming the image data based on the 32 x 32 transform unit by using a 32 x 32 quantization matrix based on an 8 x 8 quantization matrix,

wherein the 32 x 32 quantization matrix is generated by duplicating one of a first element and a second element adjacent to each other in the 8 x 8 quantization matrix as an element between the first element and the second element in the 32 x 32 quantization matrix.

9. The method according to claim 8, further comprising transforming, by the circuitry, the image data to generate the transform coefficient data on the basis of the 32 x 32 transform unit.

10. The method according to claim 9, further comprising encoding the quantized transform coefficient data to generate an encoded stream.

11. The method according to claim 10, further comprising capturing an image and generating the image data from the image.

12. The method according to claim 11, further comprising storing the encoded stream.

13. The method according to claim 11, further comprising multiplexing the encoded stream with an audio stream to generate a multiplex stream.

14. The method according to claim 13, further comprising:

generating a transmission signal by encoding and modulating the multiplex stream; and

transmitting the transmission signal.