CLAIMS:

1. An image processing device comprising:

circuitry configured to:

generate, from an 8x8 quantization matrix, a 32x32 quantization matrix corresponding to a 32x32 transform unit; and

inversely quantize quantized transform coefficient data for image data using the 32x32 quantization matrix generated by the generation section when the 32x32 transform unit is used for inverse orthogonal transformation.

2. The image processing device according to claim 1, wherein the circuitry is configured to generate the 32x32 quantization matrix by duplicating elements of the 8x8 quantization matrix.

3. The image processing device according to claim 2, wherein the circuitry is configured to generate the 32x32 quantization matrix 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.

4. The image processing device according to claim 3, wherein the circuitry is configured to decode encoded data of the image data to generate the quantized transform coefficient data.

5. The image processing device according to claim 4, wherein the circuitry is configured to:

decode the encoded data per a coding unit, and

inversely quantize the quantized transform coefficient data per a transform unit formed by recursively splitting the coding unit into smaller coding units.

6. The image processing device according to claim 5, wherein the circuitry is configured to reproduce the video data.

7. The image processing device according to claim 6, wherein the circuitry is configured to separate a video stream and audio stream of an input stream.

8. The image processing device according to claim 7, wherein the circuitry is configured to operate the image processing device.

9. The image processing device according to claim 8, wherein the circuitry is configured to extract a signal from broadcast signals and demodulate the signal.

10. An image processing method comprising:

generating, from an 8x8 quantization matrix, a 32x32 quantization matrix corresponding to a 32x32 transform unit; and

inversely quantizing quantized transform coefficient data for image data using the 32x32 quantization matrix generated from the 8x8 quantization matrix when the 32x32 transform unit is used to perform inverse orthogonal transformation.

11. The image processing method according to claim 10, wherein the 32x32 quantization matrix is generated by duplicating elements of the 8x8 quantization matrix.

12. The image processing method according to claim 11, 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.

13. The image processing method according to claim 12, further comprising:

decoding encoded data of the image data to generate the quantized transform coefficient data.

14 . The image processing method according to claim 13, wherein the encoded data is decoded per a coding unit, and

the quantized transform coefficient data is inversely quantized per a transform unit formed by recursively splitting the coding unit into smaller coding units.

Claims

1. An image processing device comprising:
circuitry configured to:

generate, from an 8×8 quantization matrix, a 32×32 quantization matrix corresponding to a 32×32 transform unit; and

inversely quantize quantized transform coefficient data for image data using the 32×32 quantization matrix generated by the generation section when the 32×32 transform unit is used for inverse orthogonal transformation,

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

2. The image processing device according to claim 1, wherein the circuitry is configured to decode encoded data of the image data to generate the quantized transform coefficient data.

3. The image processing device according to claim 2, wherein the circuitry is configured to:

decode the encoded data per a coding unit, and

inversely quantize the quantized transform coefficient data per a transform unit formed by recursively splitting the coding unit into smaller coding units.

4. The image processing device according to claim 3, wherein the circuitry is configured to reproduce the video data.

5. The image processing device according to claim 4, wherein the circuitry is configured to separate a video stream and audio stream of an input stream.

6. The image processing device according to claim 5, wherein the circuitry is configured to operate the image processing device.

7. The image processing device according to claim 6, wherein the circuitry is configured to extract a signal from broadcast signals and demodulate the signal.

8. An image processing method comprising:

generating, by circuitry of an image processing device and from an 8×8 quantization matrix, a 32×32 quantization matrix corresponding to a 32×32 transform unit; and

inversely quantizing, by the circuitry, quantized transform coefficient data for image data using the 32×32 quantization matrix generated from the 8×8 quantization matrix when the 32×32 transform unit is used to perform inverse orthogonal transformation,

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

9. The image processing method according to claim 8, further comprising:
decoding encoded data of the image data to generate the quantized transform coefficient data.

10. The image processing method according to claim 9, wherein

the encoded data is decoded per a coding unit, and

the quantized transform coefficient data is inversely quantized per a transform unit formed by recursively splitting the coding unit into smaller coding units.