

Claims

1. A method for a decoder, the method comprising:

receiving, at the decoder, at least a luminance QP (quantization parameter) value and a first image-region-dependent chroma QP bias value, the first image-region-dependent chroma QP bias value was determined at an encoder and signaled from the encoder to the decoder, wherein the decoder comprises a luminance channel, a first chroma channel and a second chroma channel;

utilizing, with the decoder, the luminance QP value and the first image-region-dependent chroma QP bias value to determine the first chroma QP value by adding the first image-region-dependent chroma QP bias value to the luminance QP value;

decompressing an image region of a video image using the luminance QP value and the first chroma QP value, wherein the first chroma QP value is less than a predetermined maximum value and greater than a predetermined minimum value, and

wherein the first chroma QP value is determined for the first chroma channel.

2. The method of claim 1, further comprising:

receiving, at the decoder, at least a second image-region-dependent chroma QP bias value, the second image-region-dependent chroma QP bias value was determined at the encoder and signaled from the encoder to the decoder;

utilizing, with the decoder, the luminance QP value and the second image-region-dependent chroma QP bias value to determine the second chroma QP value by adding the second image-region-dependent chroma QP bias value to the luminance QP value; and

decompressing the image region of the video image using at least the second chroma QP value,

wherein the second chroma QP value is determined for the second chroma channel, and

wherein the first image-region-dependent chroma QP bias value used to determine the first chroma QP value for the first chroma channel differs from the second image-region-dependent chroma QP bias value used to determine the second chroma QP value for the second chroma channel.

3. The method of claim 1, further comprising:

configuring the first image-region-dependent chroma QP bias value to be greater than zero or less than zero.

4. The method of claim 2, further comprising:

configuring the second image-region-dependent chroma QP bias value to be greater than zero or less than zero.

5. The method of claim 1, wherein the image region is based on inter-frame prediction~~predicted~~.

6. A method for coding a color space representation of video macro blocks in a computed video system having at least a decoder and an encoder, the method comprising:

receiving, at a decoder, a first image-region-dependent chroma QP bias value and a second image-region-dependent chroma QP bias value for a macroblock, wherein the first image-region-dependent chroma QP bias value and the second image-region-dependent chroma QP bias value are signaled from the encoder to the decoder and differ from each other for the macroblock; and

constructing, with the decoder, first and second chroma~~chrominance~~ quantization parameters for the macroblock, wherein the constructing comprises:

determining the first ~~chroma~~chrominance quantization parameter using the received first image-region-dependent chroma QP bias value; and

determining the second ~~chroma~~chrominance quantization parameter using the received second image-region-dependent chroma QP bias value; and

decompressing the macroblock using a luminance quantization parameter and the constructed first and second ~~chroma~~chrominance quantization parameters.

7. The method of claim 6, further comprising receiving, at the decoder, the luminance quantization parameter with the first image-region-dependent chroma QP bias value and the second image-region-dependent chroma QP bias value for the macroblock.

8. The method of claim 6, wherein the constructing comprises deriving the first ~~chroma~~chrominance quantization parameter by subtracting the first image-region-dependent chroma QP bias value from the luminance quantization parameter, wherein the first ~~chroma~~chrominance quantization parameter differs from the luminance quantization parameter.

9. The method of claim 6, wherein the constructing comprises deriving the second ~~chroma~~chrominance quantization parameter by subtracting the second image-region-dependent chroma QP bias value from the luminance quantization parameter, wherein the second ~~chroma~~chrominance quantization parameter differs from the luminance quantization parameter.

10. The method of claim 6, wherein the macroblock comprises differential coding as a function of the luminance quantization parameter, the first ~~chroma~~chrominance quantization parameter, and the second ~~chroma~~chrominance quantization parameter.

11. The method of claim 6, further comprising determining whether the decompressed macroblock has the first ~~chroma~~chrominance quantization parameter being different from the second ~~chroma~~chrominance quantization parameter.

12. The method of claim 6, wherein the constructed first and second ~~chroma~~chrominance quantization parameters in the decoder are identical to first and second ~~chroma~~chrominance quantization parameters generated in the encoder.

13. The method of claim 6, wherein the first image-region-dependent chroma QP bias value is a negative value and the second image-region-dependent chroma bias value is a positive value.

14. The method of claim 6, wherein the first image-region-dependent chroma QP bias value is a positive value and the second image-region-dependent chroma QP bias value is a negative value.