TITLE

METHOD AND APPARATUS FOR CHROMINANCE QUANTIZATION PARAMETERS SIGNALLING

CROSS-REFERENCE TO RELATED APPLICATIONS

This patent application claims priority of international patent application PCT/RU2019/000664 filed on 23.09.2019.

TECHNICAL FIELD

Embodiments of the present application (disclosure) generally relate to the field of picture processing and more particularly to Method and apparatus for Chrominance quantization parameters signaling.

BACKGROUND

Video coding (video encoding and decoding) is used in a wide range of digital video applications, for example broadcast digital TV, video transmission over internet and mobile networks, real-time conversational applications such as video chat, video conferencing, DVD and Blu-ray discs, video content acquisition and editing systems, and camcorders of security applications.

The amount of video data needed to depict even a relatively short video can be substantial, which may result in difficulties when the data is to be streamed or otherwise communicated across a communications network with limited bandwidth capacity. Thus, video data is generally compressed before being communicated across modern day telecommunications networks. The size of a video could also be an issue when the video is stored on a storage device because memory resources may be limited. Video compression devices often use software and/or hardware at the source to code the video data prior to transmission or storage, thereby decreasing the quantity of data needed to represent digital video images. The compressed data is then received at the destination by a video decompression device that decodes the video data. With limited network resources and ever-increasing demands of higher video quality, improved compression and decompression techniques that improve compression ratio with little to no sacrifice in picture quality are desirable.

CLAIMS

1. A method for inverse quantization of a current block of a picture, wherein the method is performed by a decoder, and the method comprising:

receiving a bitstream;

obtaining a joint chrominance component residual, JCCR, control flag from the bitstream;

obtaining a chrominance mapping information from the bitstream based on the JCCR control flag;

obtaining at least one chrominance quantization parameter, QP, offset from the bitstream based on the JCCR control flag;

obtaining a QP value for the current chrominance block based on the obtained chrominance mapping information and the at least one obtained chrominance QP offset;

performing inverse quantization on the current chrominance block by using the determined QP value.

2. The method according to claim 1, wherein the bitstream comprises an SPS level syntax, and the JCCR control flag is obtained from the SPS level syntax.

3. The method according to claim 1 or 2, wherein the JCCR control flag is the sps_joint_cbcr_enabled_flag.

4. The method according to claim 3, wherein if the value of the sps_joint_cbcr_enabled_flag is 1, the at least one obtained chrominance QP offset is specified by slice_joint_cbcr_qp_offset.

5. The method according to any one of claims 2 to 4, wherein the SPS level syntax comprises the following structure:

seq_parameter_set_rbsp( ) {	**Descriptor**
…	
same_qp_table_for_chroma	**u(1)**
for(i = 0; i < same_qp_table_for_chroma ? 1 : sps_joint_cbcr_enabled_flag ? 3 : 2; i++) {	
num_points_in_qp_table_minus1[i]	**ue(v)**
for(j = 0; j <= num_points_in_qp_table_minus1[i]; j++) {	
delta_qp_in_val_minus1[i][j]	**ue(v)**
…	**ue(v)**

}	
}	
}	
…	
}	

.

6. The method according to any one of claims 1 to 5, wherein the obtaining the at least one chrominance QP offset from the bitstream based on the JCCR control flag comprises:

obtaining, based on the JCCR control flag, the at least one chrominance QP offset from a picture parameter set, PPS, level syntax of the bitstream.

7. A method for encoding a current block of a picture, wherein the method is performed by an encoder, the method comprising:

encoding a joint chrominance component residual, JCCR, control flag into a bitstream;

encoding a chrominance mapping information into the bitstream based on the JCCR control flag;

encoding at least one chrominance quantization parameter, QP, offset into the bitstream based on the JCCR control flag;

providing the bitstream.

8. The method according to claim 7, wherein the bitstream comprises an SPS level syntax, and the JCCR control flag is encoded into the SPS level syntax.

9. The method according to claim 7 or 8, wherein the JCCR control flag is the sps_joint_cbcr_enabled_flag.

10. The method according to claim 9, wherein if the value of the sps_joint_cbcr_enabled_flag is 1, the at least one encoded chrominance QP offset is specified by slice_joint_cbcr_qp_offset.

11. The method according to any one of claims 7 to 10, wherein the encoding the at least one chrominance QP offset into the bitstream based on the JCCR control flag comprises:

encoding, based on the JCCR control flag, the at least one chrominance QP offset into a picture parameter set, PPS, level syntax of the bitstream.

12. A computer program product comprising program code for performing the method according to any one of the preceding claims 1 – 11 when executed on a computer or a processor.

13. A decoder, comprising:

one or more processors; and

a non-transitory computer-readable storage medium coupled to the processors and storing programming for execution by the processors, wherein the programming, when executed by the processors, configures the decoder to carry out the method according to any one of the preceding claims 1 - 6.

14. An encoder, comprising:

one or more processors; and

a non-transitory computer-readable storage medium coupled to the processors and storing programming for execution by the processors, wherein the programming, when executed by the processors, configures the encoder to carry out the method according to any one of the preceding claims 7 – 11.

15. A non-transitory computer-readable medium comprising a bitstream decoded by the method of any one of the claims 1-6.