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MACROBLOCK BIT REGULATION SCHEMES FOR VIDEO ENCODER

ABSTRACT

An MPEG2 compliant digital video encoder system employs an I-frame video encoder (11) module having a quantization unit (23) and variable length encoding to encode coefficients of each macroblock of a picture. Bit regulation schemes are presented for constraining selected coefficients of a macroblock if the bit rate of two prior macroblocks in a row exceeded a bit rate limit, or if the bit rate of the current nonintra macroblock is greater than a predetermined megabits per second (Mbps) limit. For nonintra pictures, the conventional variable length coding process is modified to generate a Fixed Coded Block Pattern (FCBP) header for each macroblock of the picture for outputting in the bitstream prior to coding of the coefficients. The regulation scheme ensures that each block of the macroblock includes at least one nonzero coefficient by setting one of the coefficients in an all zeros block to a nonzero value.

Fig. 1

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