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EXHIBIT B

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US008634462B2

(12) United States Patent

Narroschke et al.

(54) QUANTIZATION FOR HYBRID VIDEO CODING

- (76) Inventors: Matthias Narroschke, Schaafheim
 (DE); Hans-Georg Musmann, Salzgitter
 (DE)
- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 627 days.
- (21) Appl. No.: 12/531,025
- (22) PCT Filed: Mar. 10, 2008
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(65) **Prior Publication Data**

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- (51) Int. Cl. *H04N 7/18* (2006.01)
 (52) U.S. Cl.

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(10) Patent No.: US 8,634,462 B2

(45) **Date of Patent:** Jan. 21, 2014

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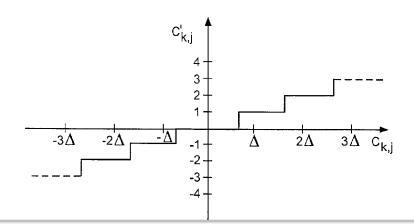
Primary Examiner — Andy Rao

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(57) **ABSTRACT**

Method for coding a video signal using hybrid coding, comprising: reducing temporal redundancy by block based motion compensated prediction in order to establish a prediction error signal; performing quantization on samples of the prediction error signal or on coefficients resulting from a transformation of the prediction error signal into the frequency domain to obtain quantized values, representing quantized samples or quantized coefficients respectively; calculating a quantization efficiency for the quantized values; calculating a zero efficiency for a quantization, when the quantized values are set to zero; selecting the higher efficiency; and maintaining the quantized values or setting quantized values to zero, for further proceeding, depending on the selected efficiency.

14 Claims, 8 Drawing Sheets



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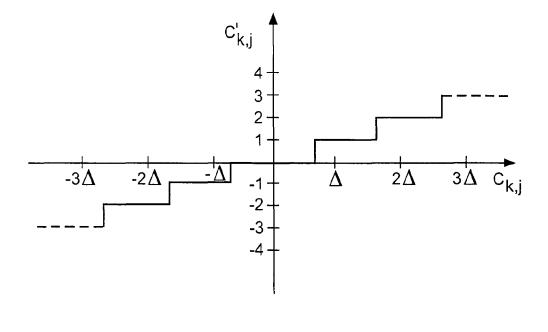
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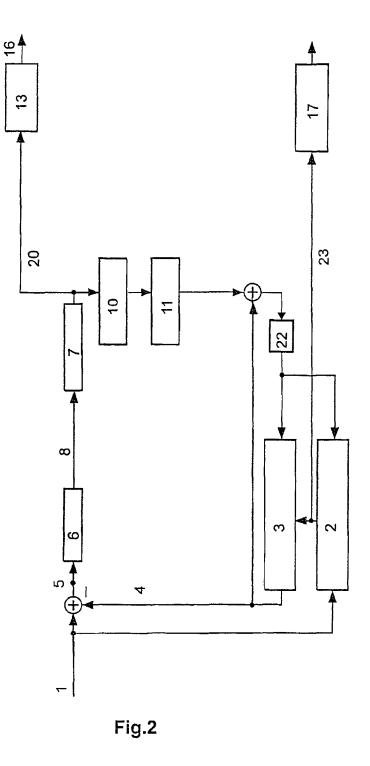
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