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Kuriakin et al.

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(54) **METHOD AND APPARATUS FOR IMPROVED MEMORY MANAGEMENT OF VIDEO IMAGES**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 893 days.

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Related U.S. Application Data

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(51) **Int. Cl.**
H04N 7/12 (2006.01)

(52) **U.S. Cl.** **375/240.26**

(58) **Field of Classification Search** 348/420, 348/413, 402, 421, 416, 400, 699, 405.1, 348/419.1, 424, 441, 425, 453, 449; 382/107, 382/235, 234, 238, 244; 386/109, 111; 375/240.03, 375/240.21, 240.26, 240.25
See application file for complete search history.

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(Continued)

Primary Examiner—Tung Vo

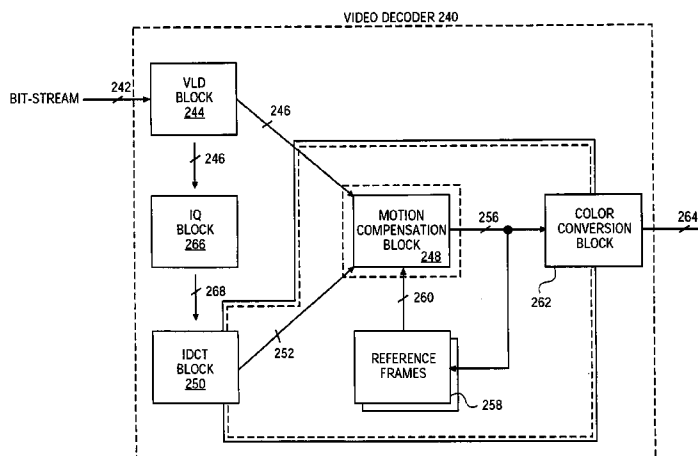
Assistant Examiner—Behrooz Senfi

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(57) **ABSTRACT**

A novel storage format enabling a method for improved memory management of video images is described. The method includes receiving an image consisting of a plurality of color components. Once received, the plurality of color components is converted to a mixed format of planar format and packed format. The mixed packet format is implemented by storing one or more of the plurality of color components in a planar format and storing one or more of the plurality of color components in a packed format. A method for writing out video images is also described utilizing a write combining (WC) fame buffer. The decoding method motion compensates groups of macroblocks in order to eliminate partial writes from the WC frame buffer.

6 Claims, 15 Drawing Sheets



OTHER PUBLICATIONS

Bilas, Angelos et al., *Real Time Parallel MPEG 2 Decoding in Software*, Princeton University, Departments of Computer Science and Electrical Engineering, pp. 1-14.

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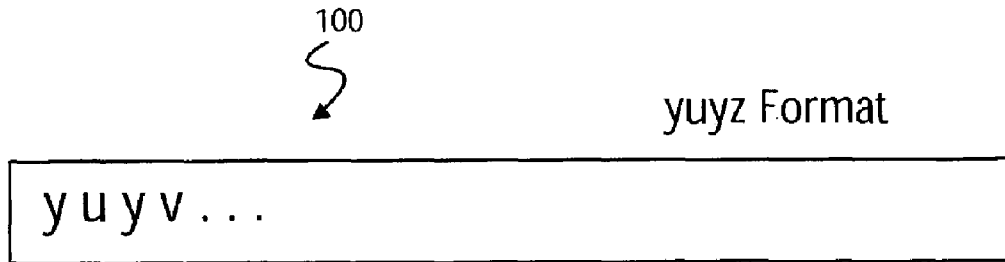


FIG. 1A

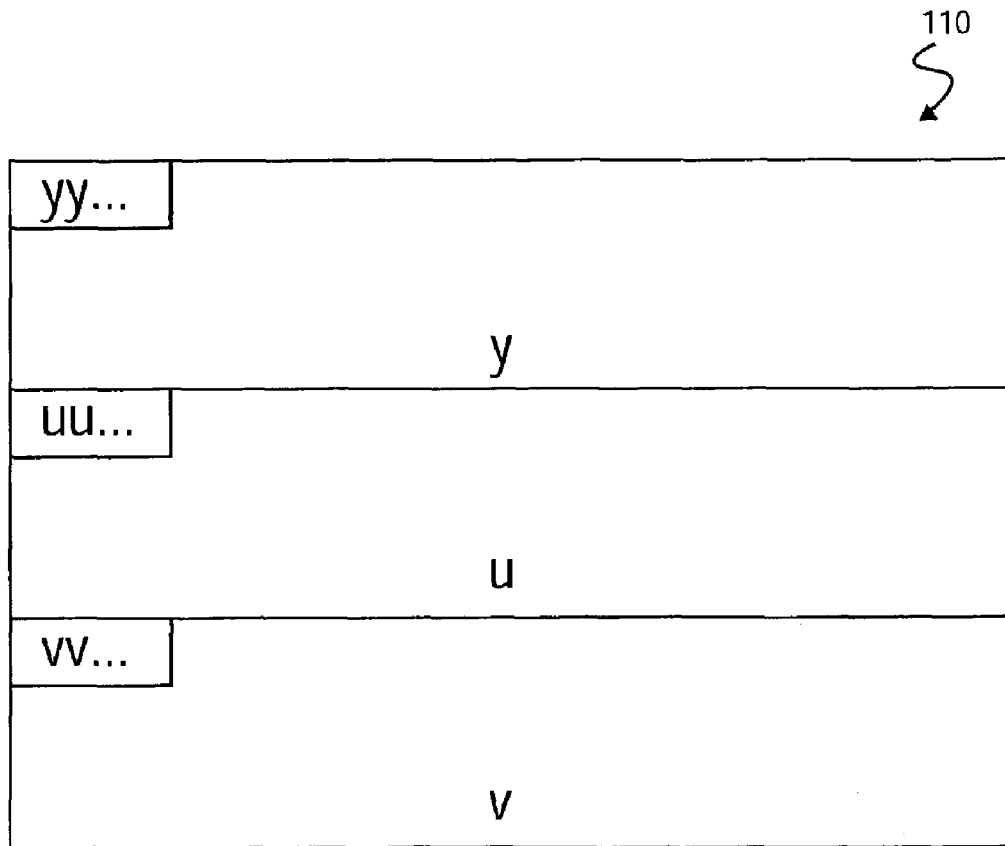


FIG. 1B

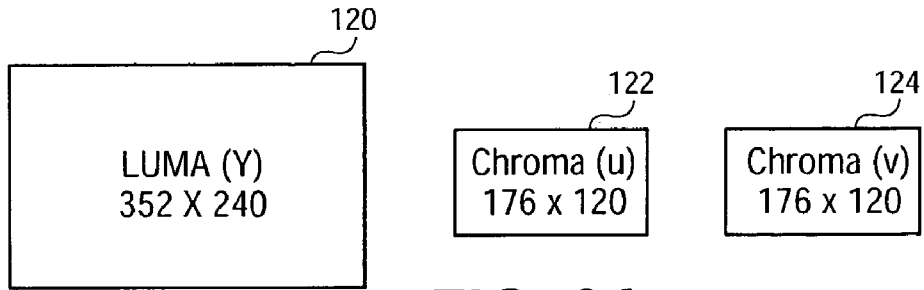


FIG. 2A

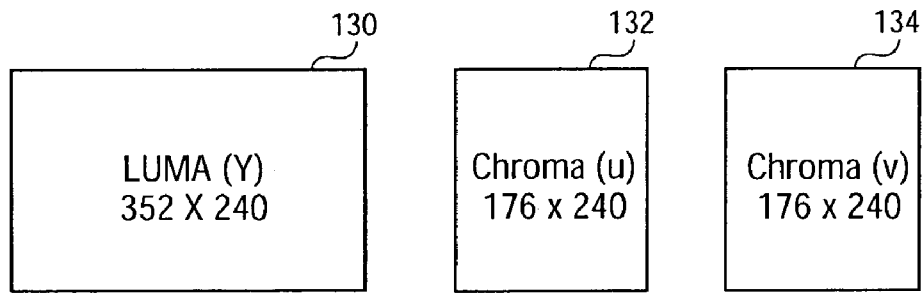


FIG. 2B

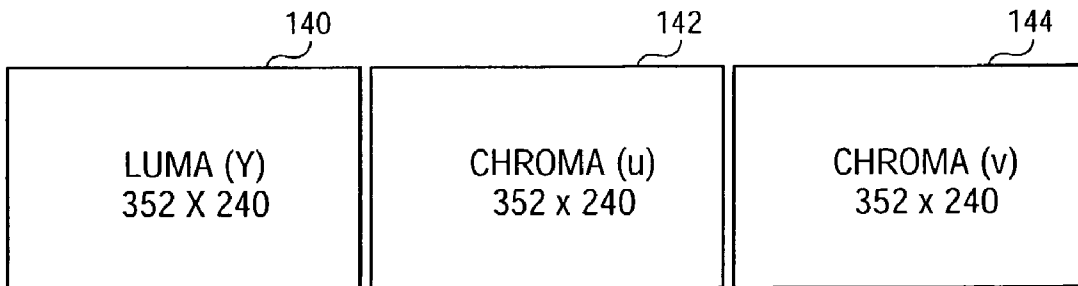


FIG. 2C

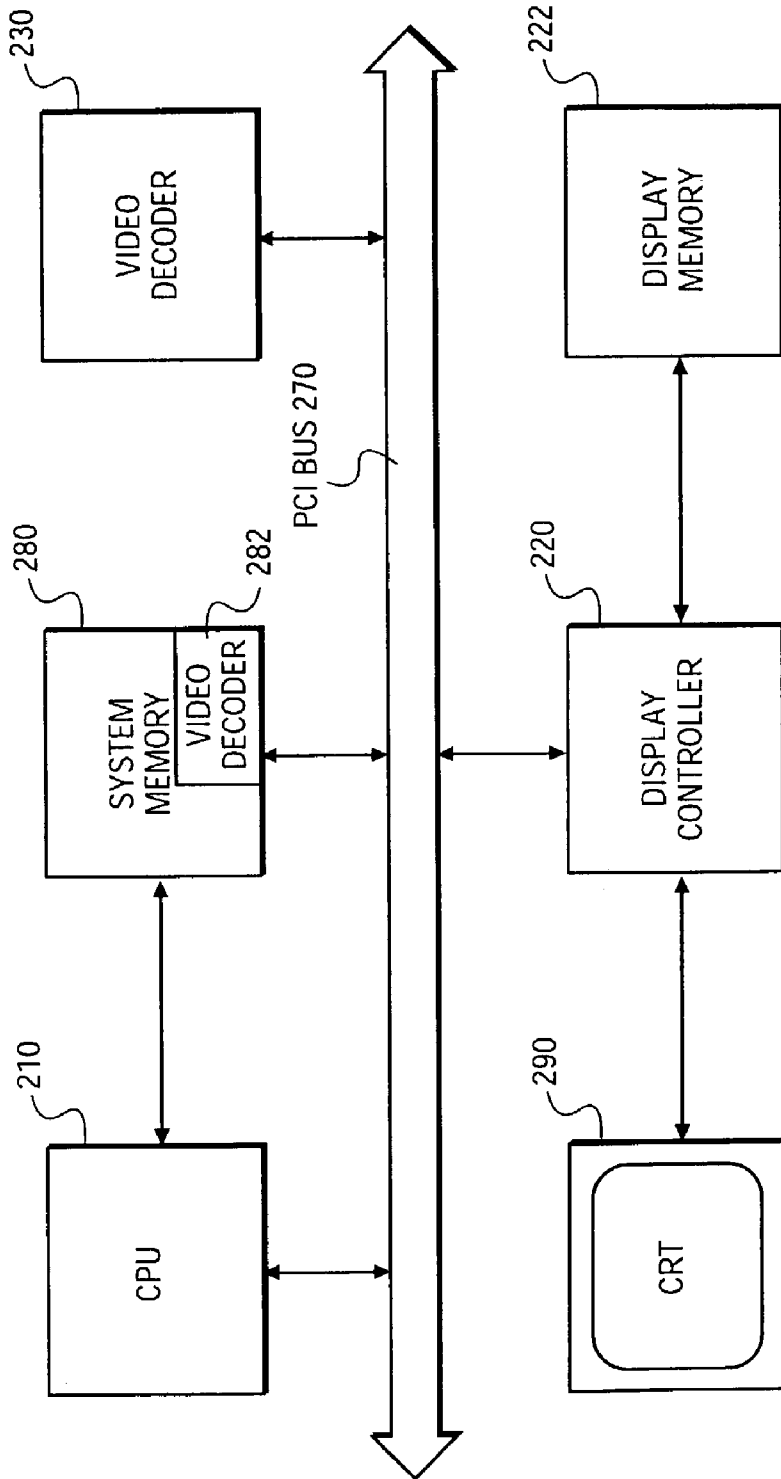


FIG. 3
(PRIOR ART)

200

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