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Karczewicz et al.

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(54) **METHOD AND SYSTEM FOR CONTEXT-BASED ADAPTIVE BINARY ARITHMETIC CODING**

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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 0 days.

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(21) Appl. No.: **09/995,240**

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(65) **Prior Publication Data**

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Related U.S. Application Data

(57) **ABSTRACT**

(60) Provisional application No. 60/322,112, filed on Sep. 14, 2001.

A method and system for image coding, wherein an image is divided into a plurality of blocks for scanning. The pixels values in the scanned block are represented by a plurality of level-run value pairs, wherein the level value is indicative of a non-zero pixel value and the run value is indicative of the number of consecutive zero pixel values preceding the non-zero pixel value. A plurality of contexts indicative of the level-run value pairs are conveyed to a decoder for allowing the decoder to reconstruct the image based on the contexts. The assignment of the contexts is also based on the level value of a preceding level-run pair. Additionally, instead of an end-of-block symbol, the number of non-zero coefficients is provided to the decoder prior to conveying the contexts thereto.

(51) **Int. Cl.**⁷ **G06K 9/36**; G06K 9/34

(52) **U.S. Cl.** **382/247**; 382/173; 382/248

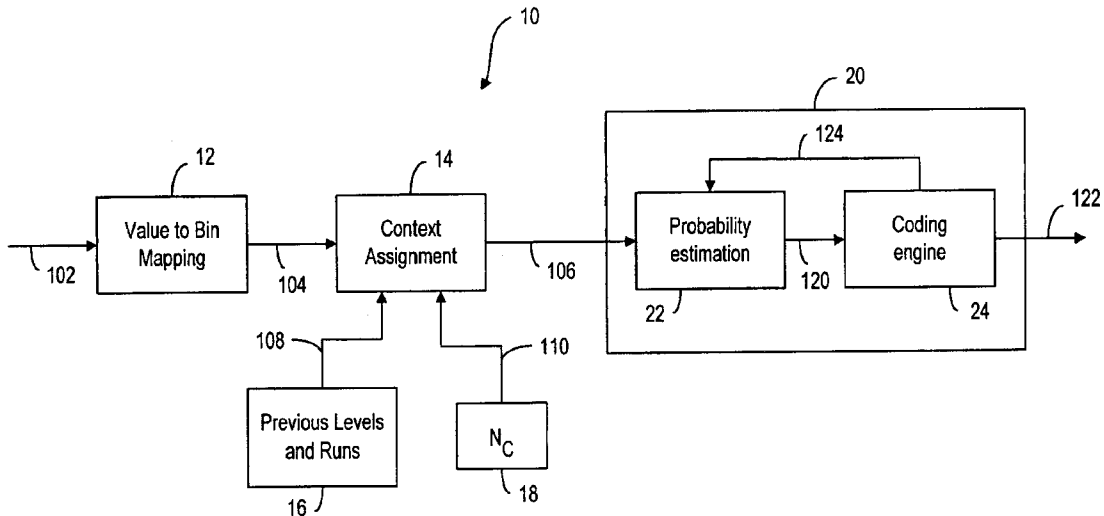
(58) **Field of Search** 382/173, 232, 382/233, 240, 247, 248, 250, 245, 251; 341/50, 59, 52, 67, 69, 79, 106, 107; 358/505

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40 Claims, 16 Drawing Sheets



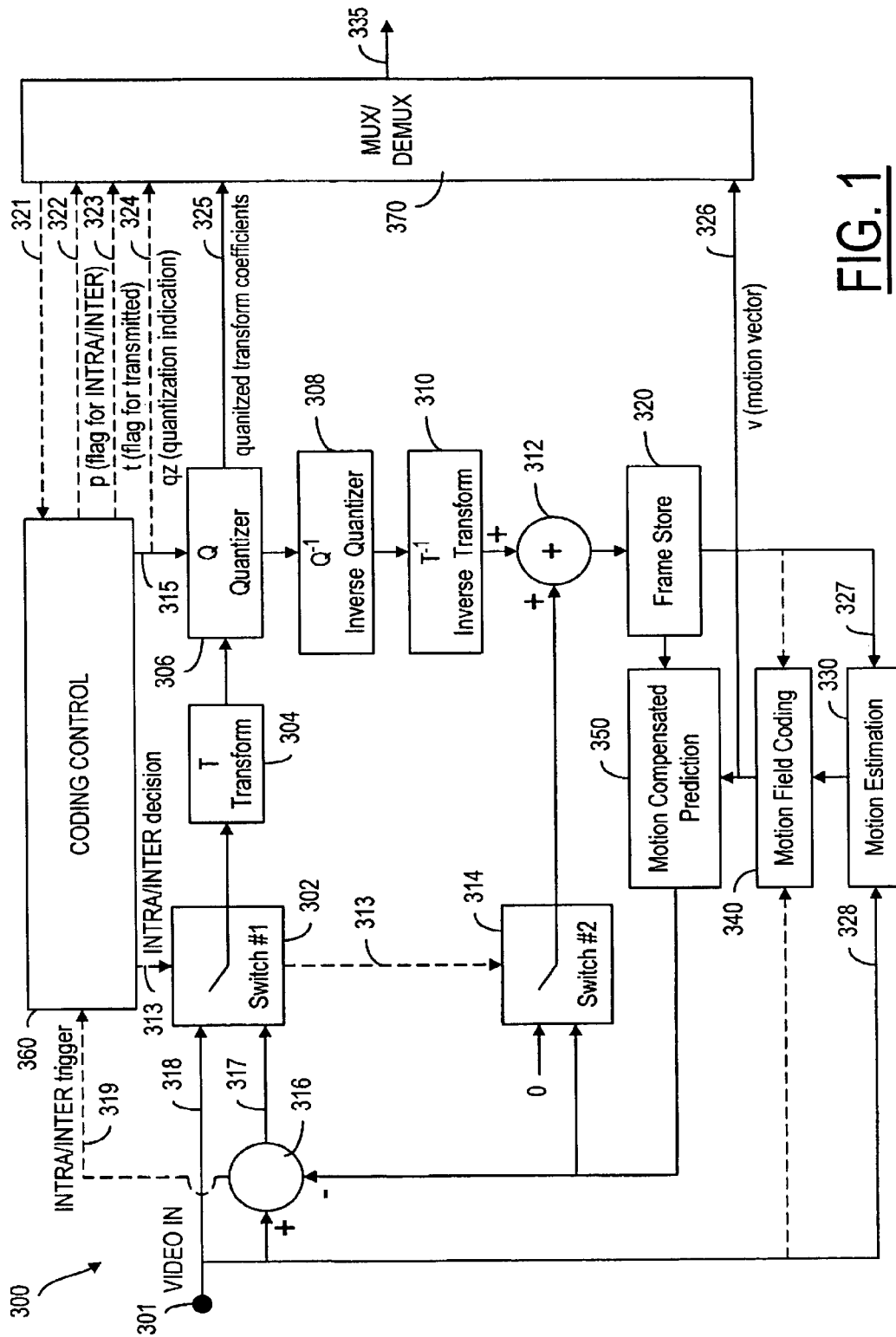


FIG. 1

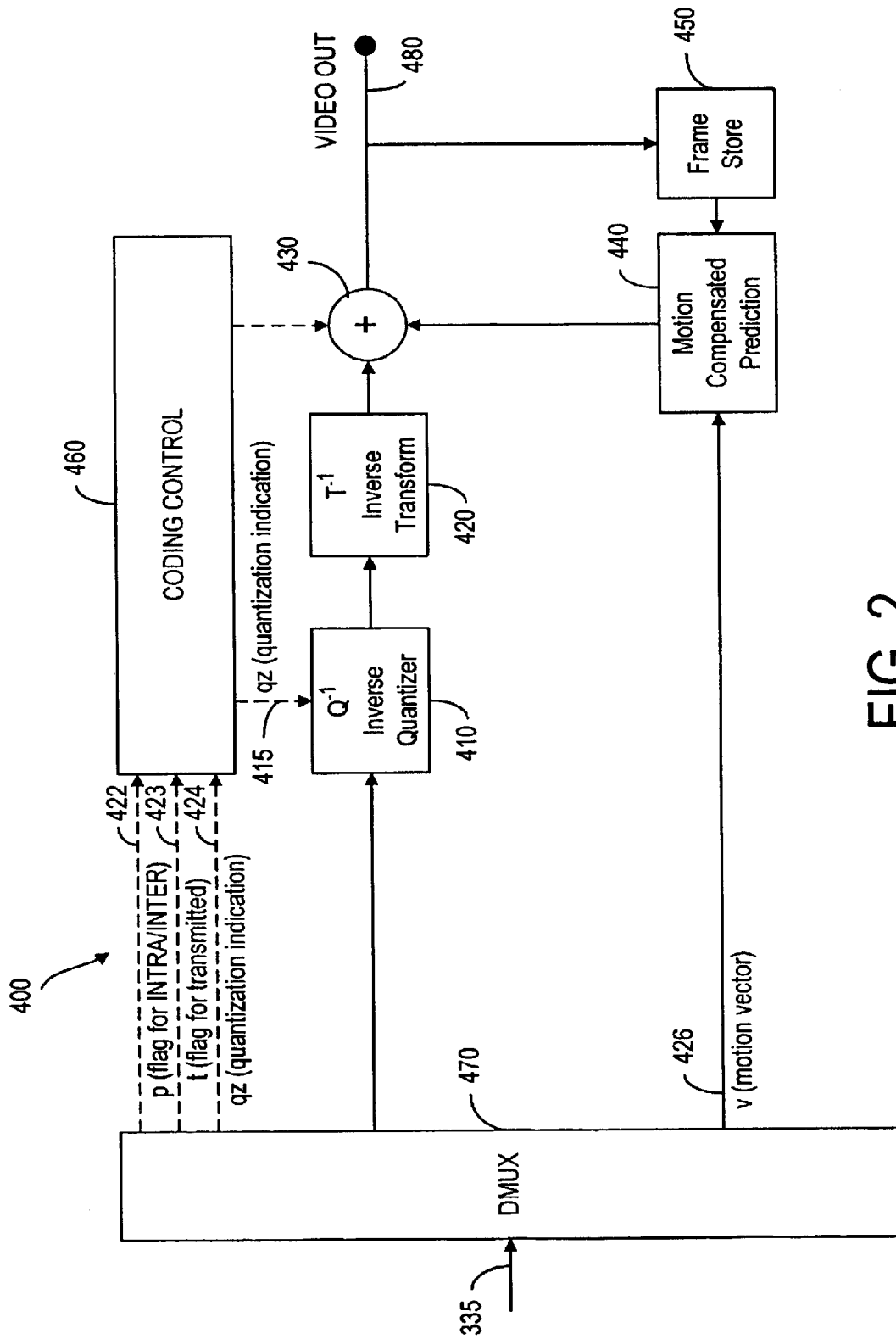


FIG. 2

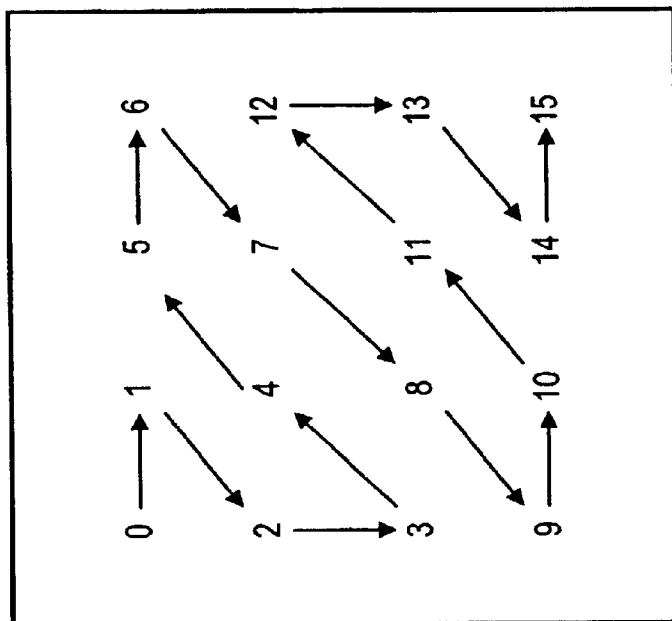


FIG. 3

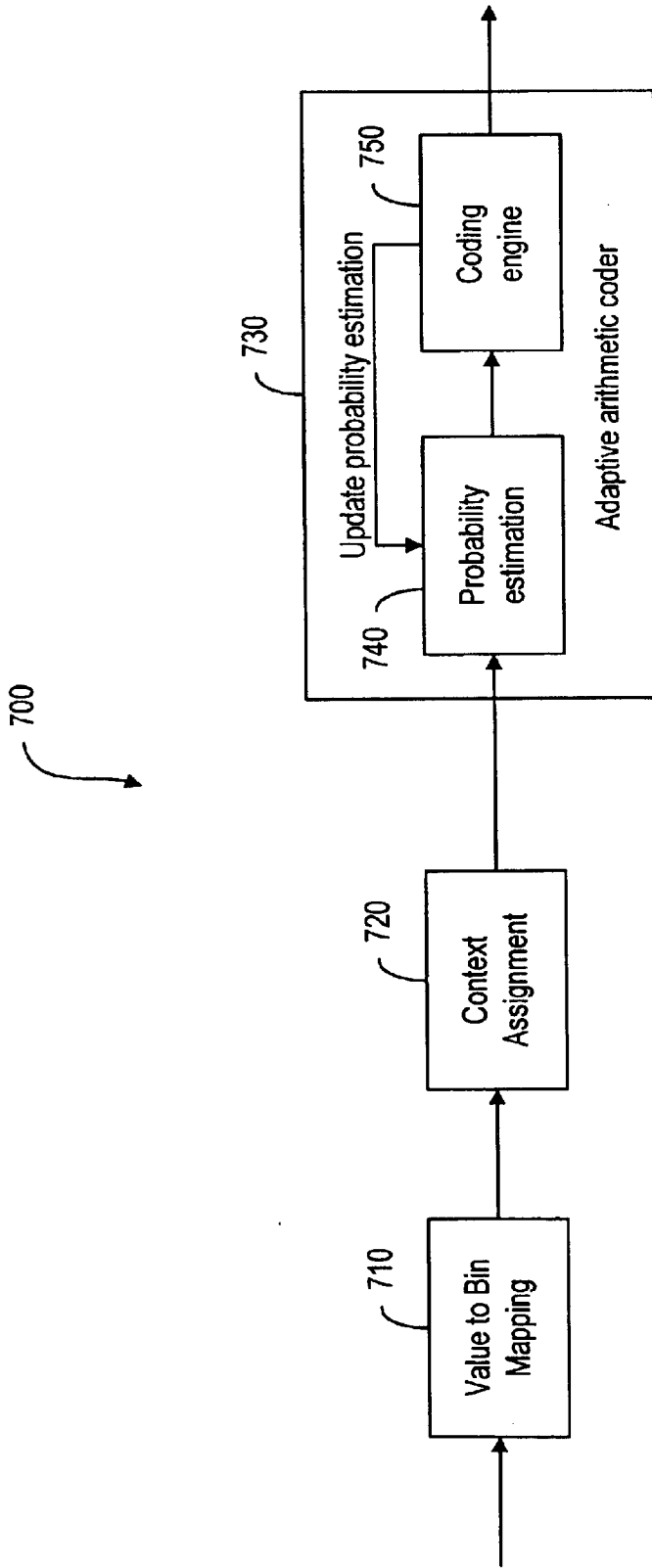


FIG. 4
(PRIOR ART)

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