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## (12) United States Patent

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.
- (21) Appl. No.: 09/995,240
- (22) Filed: Nov. 27, 2001
- (65) Prior Publication Data

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### Related U.S. Application Data

- (60) Provisional application No. 60/322,112, filed on Sep. 14, 2001.
- (51) **Int. Cl.**<sup>7</sup> ...... **G06K 9/36**; G06K 9/34

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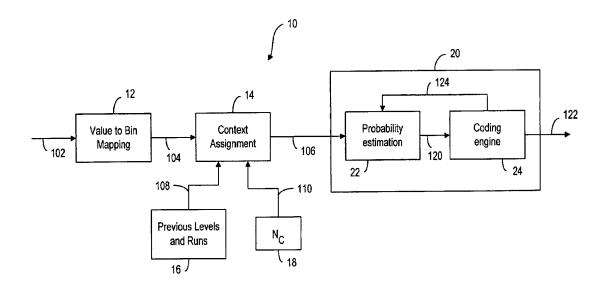
\* cited by examiner

Primary Examiner—Andrew W. Johns Assistant Examiner—Amir Alavi (74) Attorney, Agent, or Firm—Ware, Fressola, Va Der Sluys & Adolphson LLP

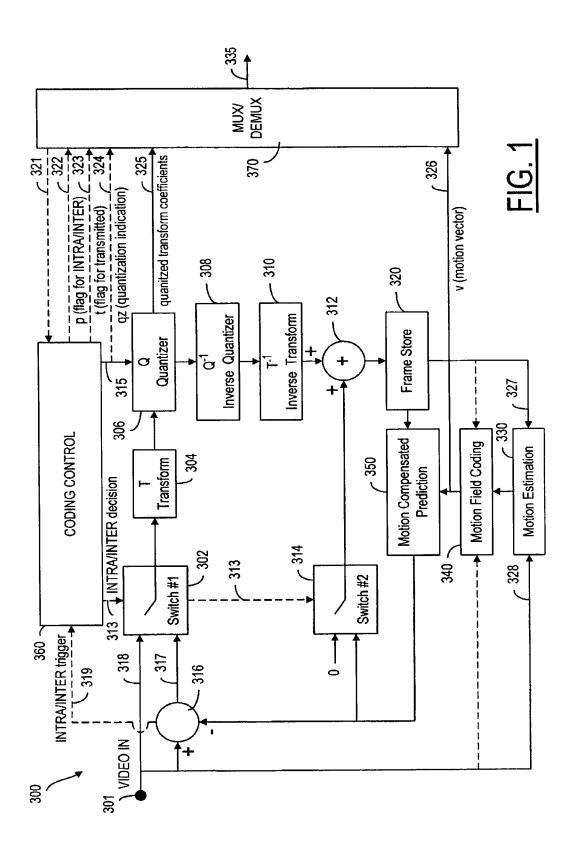
### (57) ABSTRACT

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.

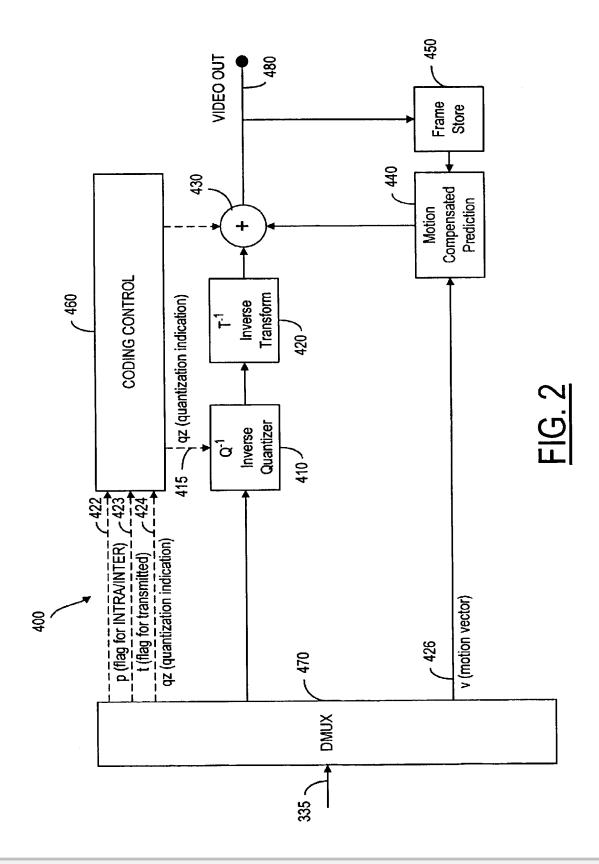
### 40 Claims, 16 Drawing Sheets













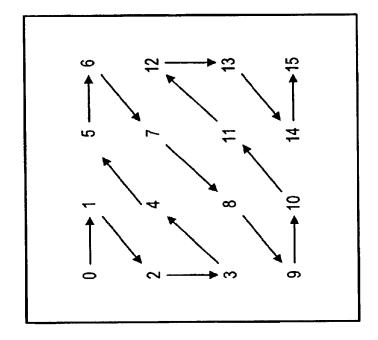
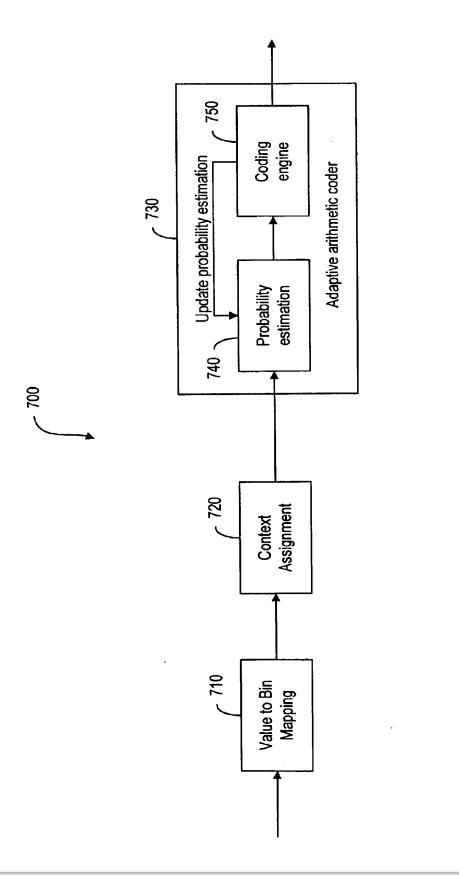


FIG. 3



<u>FIG. 4</u> PRIOR ART)

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