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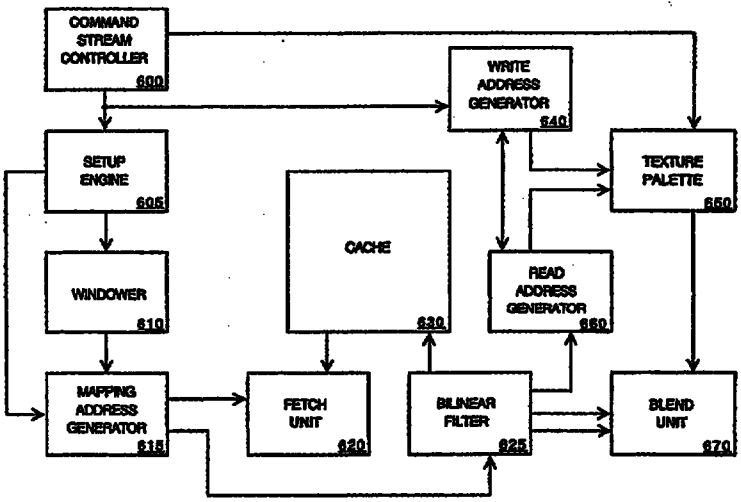
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(54) Title: METHOD AND APPARATUS FOR PERFORMING MOTION COMPENSATION IN A TEXTURE MAPPING ENGINE



(57) Abstract

A method and apparatus for motion compensation of digital video data with a texture mapping engine is described. In general, the invention provides motion compensation by reconstructing a picture by predicting pixel colors from one or more reference pictures. The prediction can be forward, backward or bi–directional. The architecture described herein provides for reuse of texture mapping hardware components to accomplish motion compensation of digital video data. Bounding boxes and edge tests are modified such that complete macroblocks are processed for motion compensation. In addition, pixel data is written into a texture palette according to a first order based on Inverse Discrete Cosine Transforms (IDCT) results and read out according to a second order optimized for locality of reference. A texture palette memory management scheme is provided to maintain current data and avoid overwritting of valid data when motion compensation commands are pipelined.