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(12) **United States Patent**
Kim

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(54) **DCT DOMAIN DOWN CONVERSION SYSTEM THAT COMPENSATES FOR IDCT MISMATCH**

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(51) Int. Cl.⁷ **H04N 7/30**

(52) U.S. Cl. **375/240.25; 375/240.24; 375/240.21**

(58) Field of Search **375/240.25, 240.24, 375/240.21; H04N 7/30**

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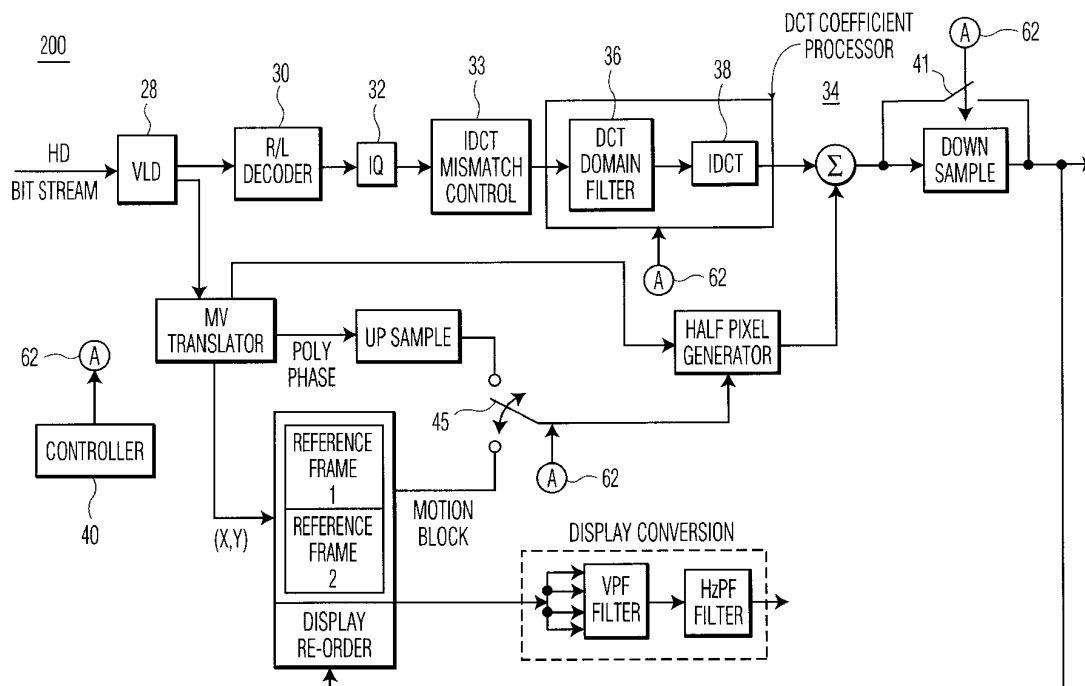
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(57) **ABSTRACT**

To reduce aliasing during the down conversion and decoding of video signals that have been encoded according to the moving picture experts group (MPEG) standard, a discrete cosine transform (DCT) domain filter is applied to the unquantized DCT coefficient values. Also, partly because the inverse discrete transform (IDCT) operation of the MPEG standard may be implemented, IDCT mismatch control processing is implemented. Concurrent implementation of the IDCT mismatch control process and the DCT domain filter does not consistently produce the highest quality picture. Thus, the current invention is related to a robust DCT domain filter designed to maintain the higher quality in downconverted images. The DCT domain filter sets the filter coefficient corresponding to the highest frequency band to unity to prevent modification of any coefficient value that has been modified by the IDCT mismatch operation.

13 Claims, 4 Drawing Sheets



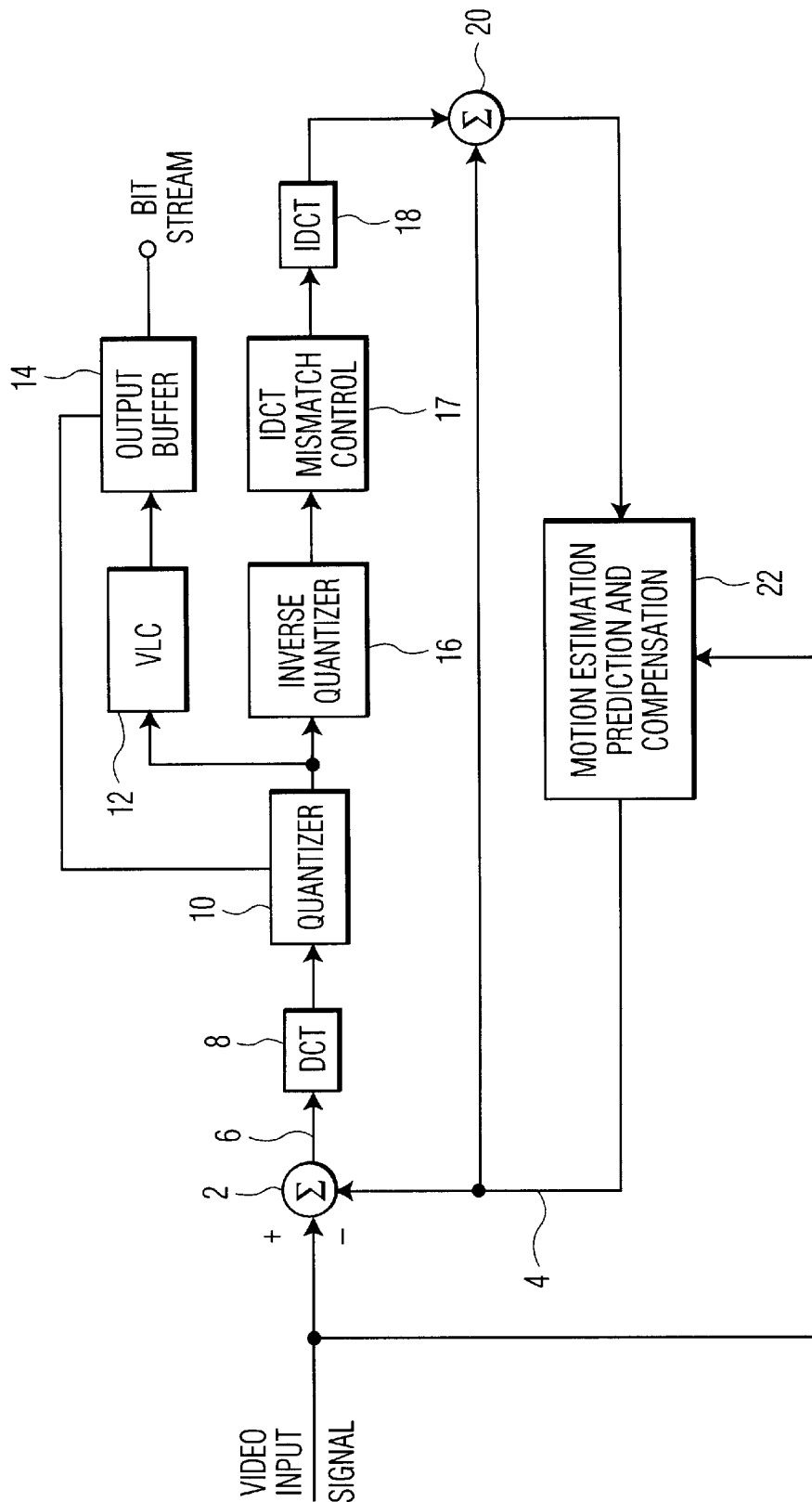


FIG. 1
(PRIOR ART)

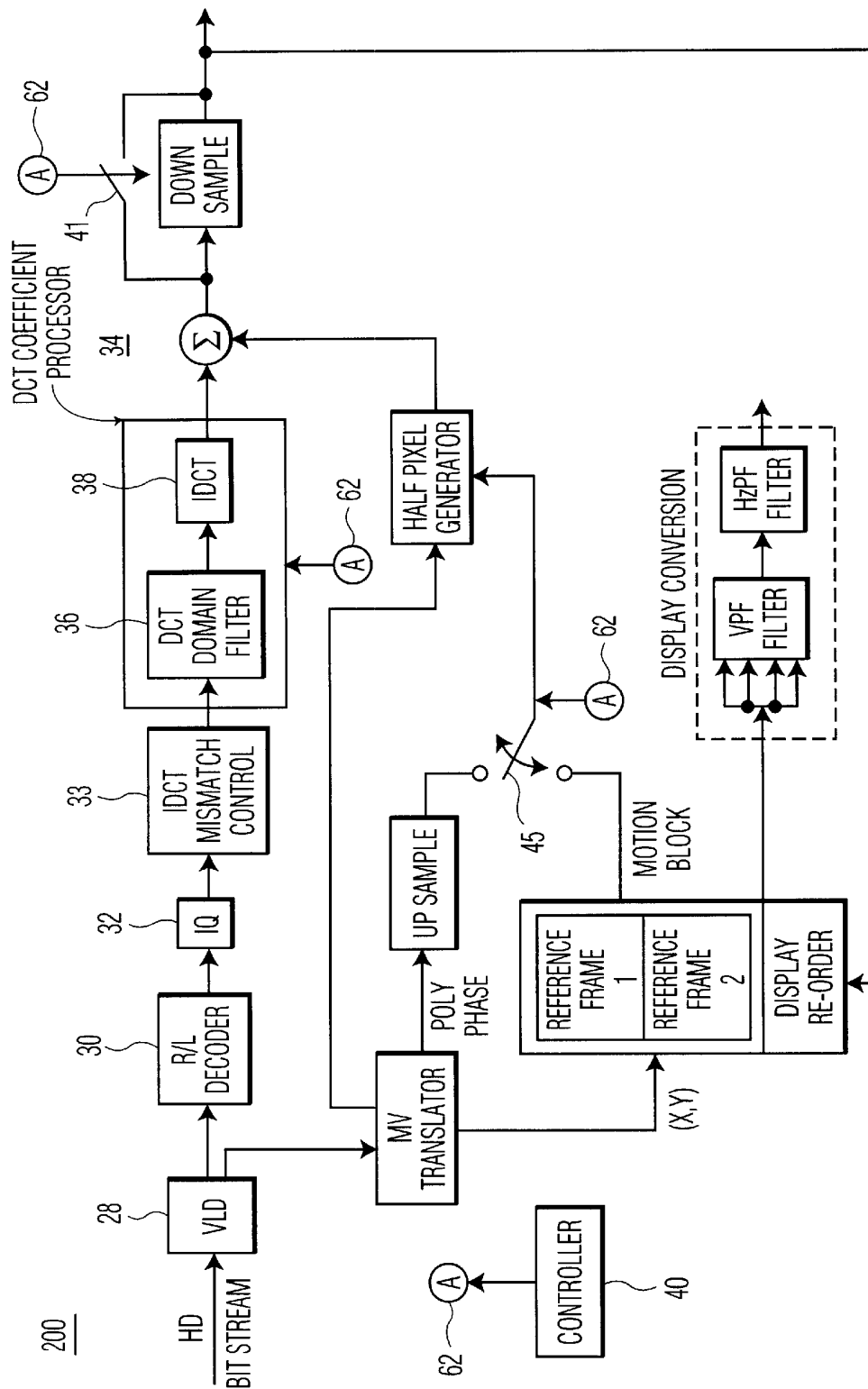


FIG. 2

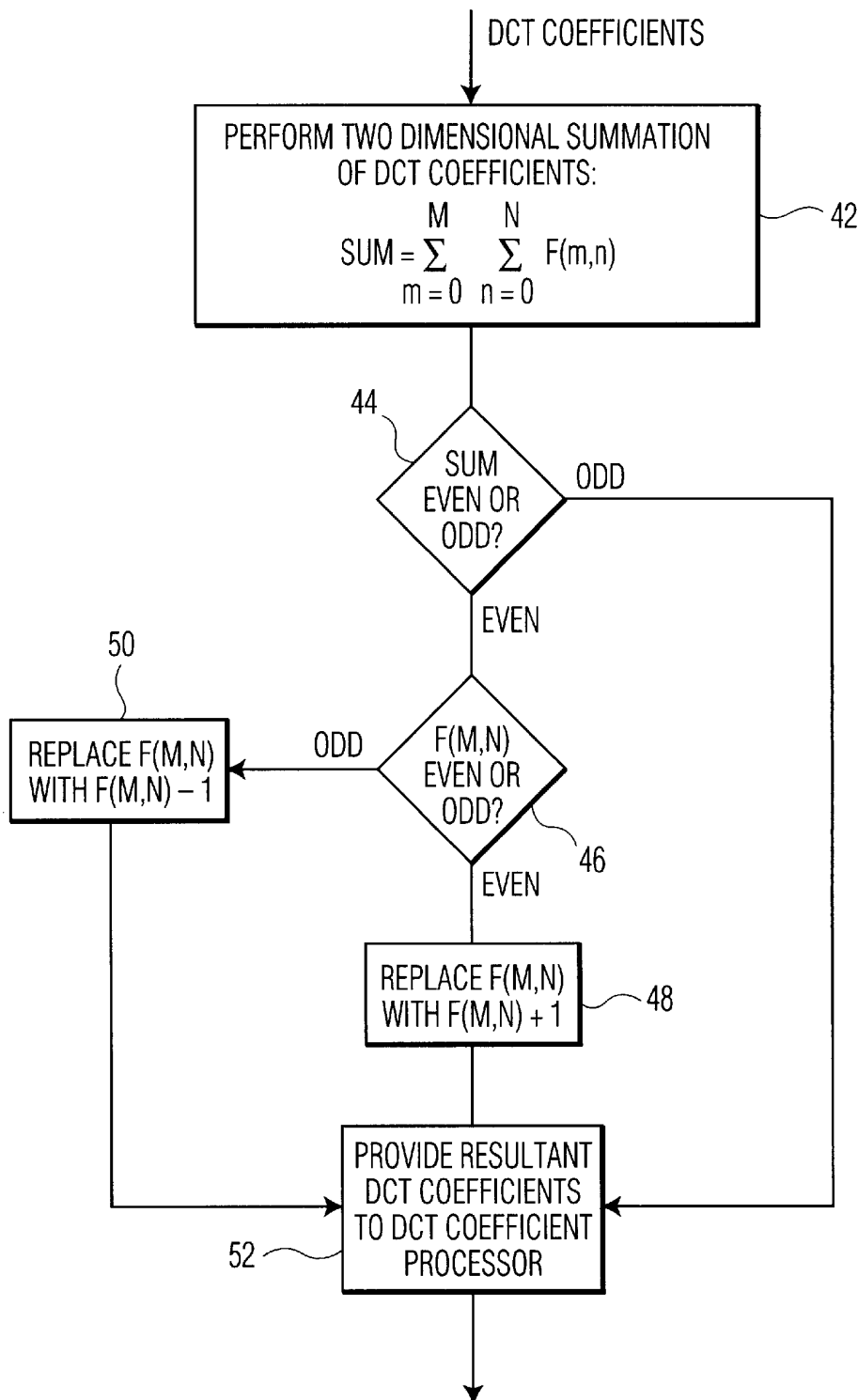


FIG. 3

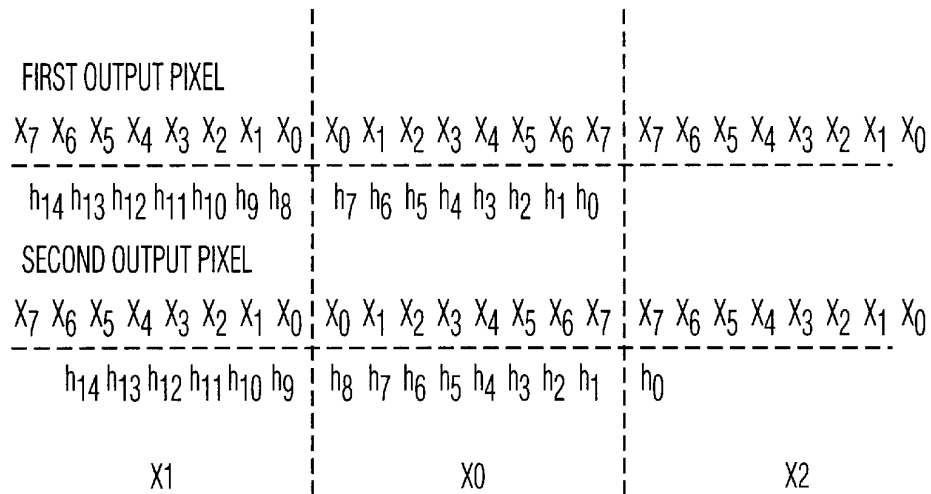


FIG. 4
(PRIOR ART)

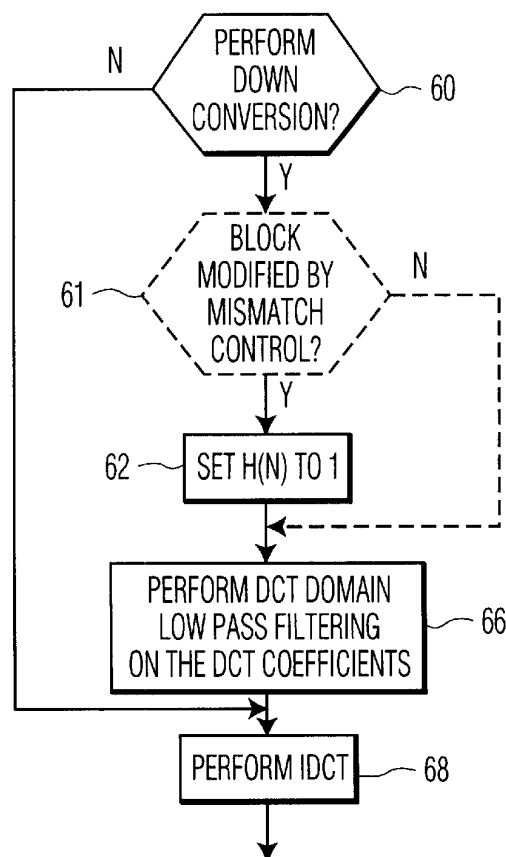


FIG. 5

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