ABSTRACT OF THE DISCLOSURE

A motion picture encoding system comprising a frame-based shape motion detecting unit (24) and a frame-based shape motion compensation unit (26) which make motion compensated prediction for the shape data (2) of each alpha block included in an interlaced frame comprised of a pair of top and bottom fields so as to generate a frame-based prediction data for shape. In addition, a field-based shape motion detecting unit (28) and a field-based shape motion compensation unit (30) make motion compensated prediction for the shape data (2) of each alpha block included in each of the two fields of the frame independently so as to generate a field-based prediction data for shape. An arithmetic encoding unit (32) can inter-code the shape data using the frame-based prediction data for shape, and inter-code the shape data using the field-based prediction data for shape. The arithmetic encoding unit (32) then selects one of the coded results having the shortest code length.