The Application of Gradient Vector Flow Active Contour Algorithms to Locate BGA Boundaries

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E-mail: 9221545@ mail.dyu.edu.tw

ABSTRACT

Continual increases in IC-chip complexity and performance are placing demands on the density and functionality of package I/Os. Therefore, various SMT interconnection techniques are being developed to satisfy this need, including Ball-Grid-Array (BGA). BGA is an area-array interconnection that can achieve a density of 400 I/Os per square inch. Image segmentation is an important preprocessing procedure for image analysis. The result of image segmentation significantly affects the accuracy of subsequent image analysis. Active Contours, or snake, are widely and a powerful technology to segment objects within image. There are two key difficulties in the design and implementation of Snake models. Problem associated with initialization and poor convergence to boundary concavities. GVF (Gradient Vector Flow) Snake is insensitivity to initialization and its ability to move into boundary concavity. Snake and GVF Snake algorithms are often short of the capability in processing multi-objects. In this thesis, we apply GVF Snake algorithm to locate BGA boundaries, which produce a very good result.

Keywords : SMT ; BGA ; Image segmentation ; Snake ; GVF Snake

Table of Contents

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