Applying Association rule technique for SMT Failure analysis

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Abstract

Semi-conductor is more competitive than any industrial field in nowadays. Producers have to listen the VOC (voice of customer) and provide after-sales service to improve customer satisfaction, otherwise they have to suffer the loss of customer returned goods and get worse image in product and enterprise. Thus, producers shall assign much human resource to find the failure root cause of failed goods and trace back to correct the issue in production line to keep advantage in this field.

In order to save the human resource and analysis time, this research applies association rules technique to find the relationship between VOC, failure mode and failure root cause. Based on this we can generate associational rule to predict the root cause from VOC immediately instead of analyzing every failed goods. Sometimes new case can't match any rule, we use Jaccard similarity coefficient to find the approximate rule and set the consequent for prediction. And if confliction rule is happened we use sub-itemsets calculation to choose the highly confidence consequent to be prediction result.

Keyword：Semi-conductor, SMT, Association Rule, Apriori algorithm