

## **Abstract**

Manufacturing is now regarded as a key competitive weapon to achieve success in the world market. An existing climate for achieving manufacturing competitiveness is quality as well as cost leadership and customer oriented attitude. The prime challenge facing the factory manager is to adopt manufacturing operation that improves companies' competitive advantage and profitability. This can be realized by improving process and quality by reducing cost, lead time, and inventory levels among others. A valuable tool in manufacturing management for improving yield performance is the six sigma method. This approach consists of DMAIC (Define, Measurement, Analysis, Improvement and Control), which is a method for achieving the targets concerning yield performance, cost reduction, and quality improvement. Six sigma method is a manufacturing philosophy that emphasizes factory operating system and continual improvement through deep realization and simplification of manufacturing process. The focus of this study was on making improvements and dealing with problems found in the selective electro plating process. The cause and effect matrix has shown that low yield was caused by damage lead, solder residue, and contamination. Six sigma system was then applied to the problems in order to make improvements and quantify the benefits achieved for the process control. The target was set as 99.98%.

Research study is based on field data collection at an integrated circuit manufacturer. After successfully adopting six sigma, it was found that the resulting integrating circuit plating yield was 99.99%.