ChipCheck Detection of counterfeit electronic components
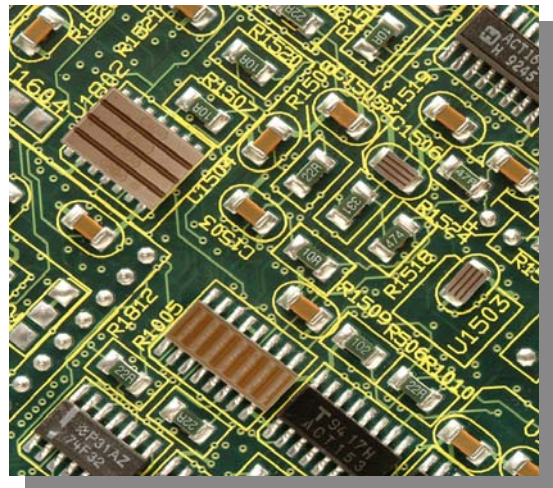

Development of novel X-ray inspection system for fast automated detection of counterfeit PCB components

- **Project budget: €1.2m**
- **End Users: SMART Group, Semicon**

Counterfeit electronic components are defined as substitutes or unauthorised copies of a product, a product used in which materials used or the performance of the product has changed without notice, or a substandard component misrepresented by the supplier.

There is a significant need to stop counterfeit PCB components entering the supply chains of electronic product manufacturers. The safety consequences of a counterfeit component inadvertently deployed in products for the aero, auto, nuclear, medical, critical plant control and electronics consumer industries cannot be overstated. Likewise the commercial costs incurred by manufacturers once a counterfeit component has been detected in their product can be enormous. **The need for this project arises from the fact that no electronic product manufacturer is immune from counterfeit components**.

Currently, manufacturers cannot check all components at "goods inwards". Although some manufacturers make random checks on single components from batches of components, it would be impossible to check all components in a cost effective manner. This is especially so when considering that surface mount components are supplied on feeding mechanisms, such as tape and reels, where the number of components can range typically from 1,000 to 20,000. A typical single inspection would comprise visual inspection and in-circuit testing. Performing these checks is disadvantageous as it requires each component to be removed from the packaging or reel; invalidating any guarantee to a claim should a counterfeit component be found.

The new EU FP7 part funded project ChipCheck seeks to address this through the development of a counterfeit electronic component detection system that will automatically inspect components in their original packaging. A number of non destructive testing methods will be investigated and developed to establish the best detection method that can be automated. Automated detection algorithms will be developed for sentencing of good and bad components

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