

Rapid Assembly Inspection for COTS Security (RAICS)

CHALLENGE

Both government and commercial sectors rely on consumer off-the-shelf (COTS) printed circuit boards (PCBs) from the global supply chain, yet currently no tools exist that are designed to verify and validate the trust and assurance of these PCBs.

SOLUTION

Battelle RAICS is a software suite developed to analyze PCB assemblies, with complementary imaging hardware to generate multimodal signatures from an array of industrial sensors. Through sensor fusion and modern neural network architectures, RAICS achieves automated bill of material (BOM) extraction and PCB surface anomaly detection, enabling the user to quickly assess the integrity of a COTS device.

IMPACT

RAICS eliminates the need for procuring separate imaging equipment and reduces the time spent capturing, transferring and converting various data formats by offering complete multimodal image set generation in a single hardware unit. The system may be deployed on-site to enhance any hardware assurance evaluation process, replacing the manual inspection process and producing automated reports with human-interpretable results.

