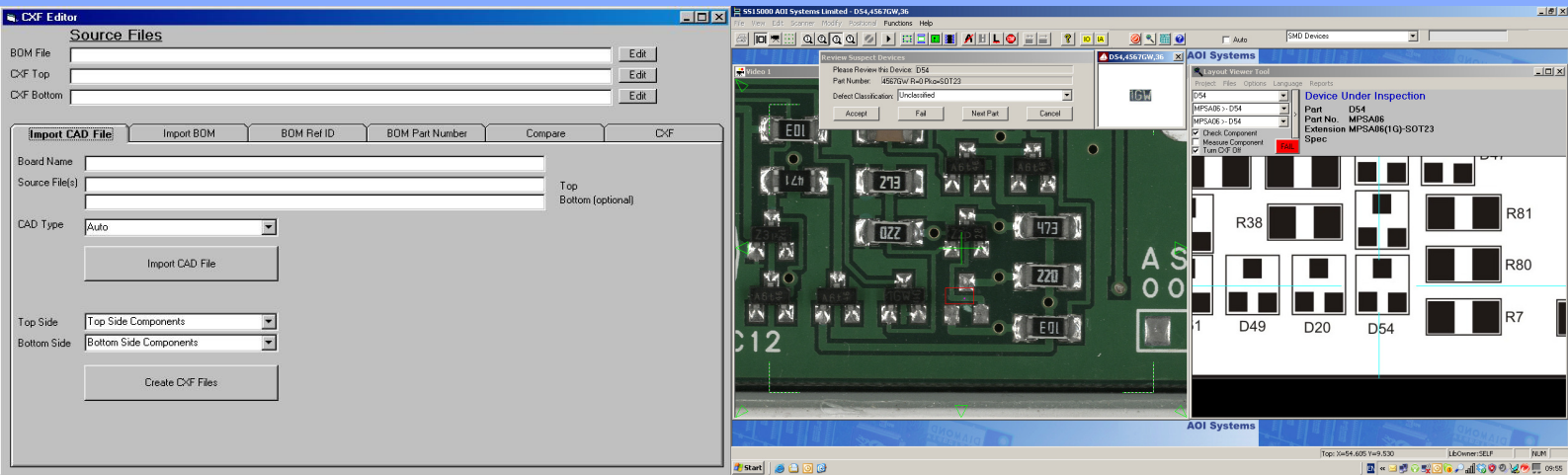# AOI Systems Limited

Automated Optical Inspection

First Article Comparator Inspection
## SS15000FA
SS15000IC

ScanSpection Optical Inspection

ScanSpection the revolutionary scanner system, for the inspection of low to medium volume PCB Assemblies were programming is not required. The system compares between a known good (Gold) board and a sample board.

The system automatically aligns and flips between the two images testing the board using a predefined test routine for the board under inspection. The "Test Board" function allows the comparison of specific areas of the board ensuring a precise and consistent method of test from inspector to inspector.

Highlighting defects using "Fault Markers" & "Classifications" not only lets you see the fails on screen but allow the operator to print the image with all the faults defined. This information can be tagged to the board & used for rework purposes. Additionally this information can be called up at a later date in report format and used for the creation of high level SPC reporting or defect analysis.
The systems flexibility allows the inspection of Tracks, Solder Balls and any Non PCB Devices such as Mechanical Assemblies.

The systems are available as a low cost top loader and a competitively priced drawer loading version.
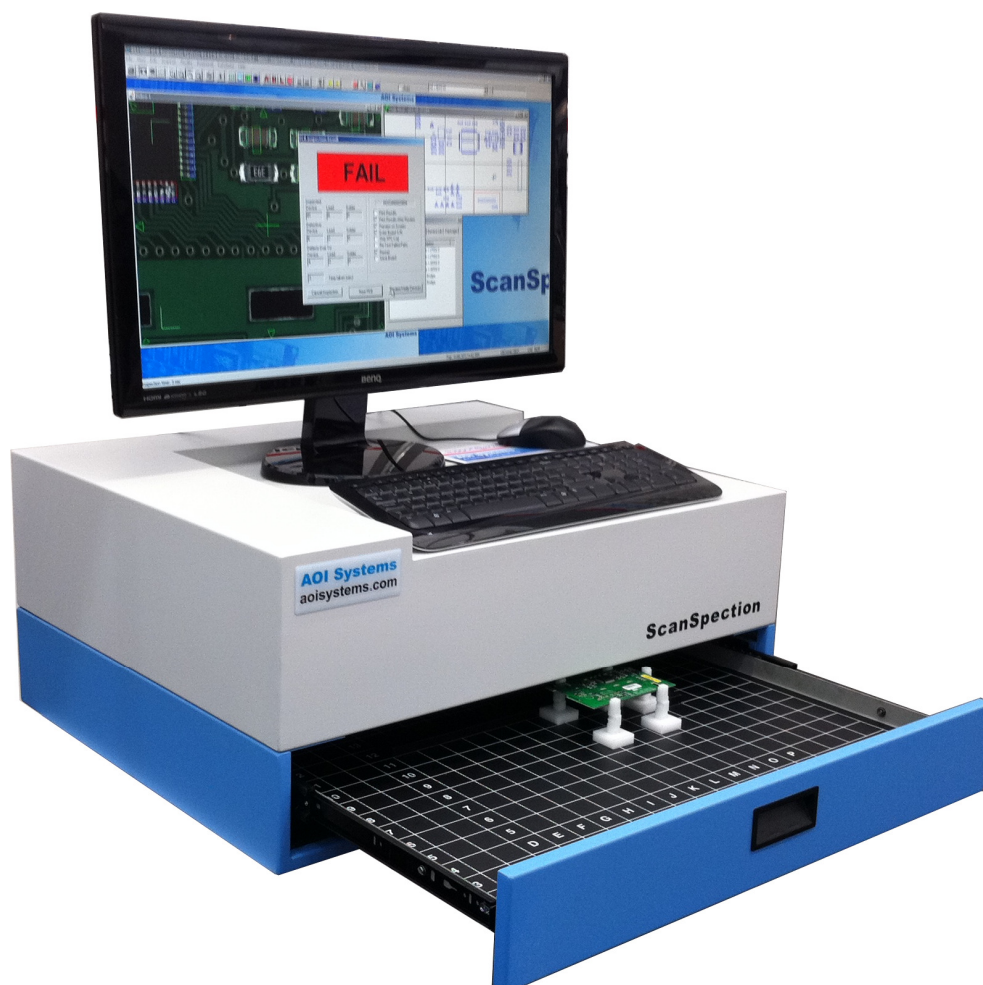
AOI Systems - Assisted Optical Inspection

Creating Gold Boards

This simple user friendly interface allows operators with very little PC knowledge to create test programs in minutes rather than hours.

The operator chooses two fiducial marks on the PCB for auto alignment or manual alignment during the test. After this, the creation of a default test routine can be applied or customised to suit the board type. The program is then saved remembering the board position for future inspections. Another great advantage is the board image is stored digitally eliminating the need to retain sample gold boards between production runs, this also reduces the time spent locating the sample board prior to the next production run.
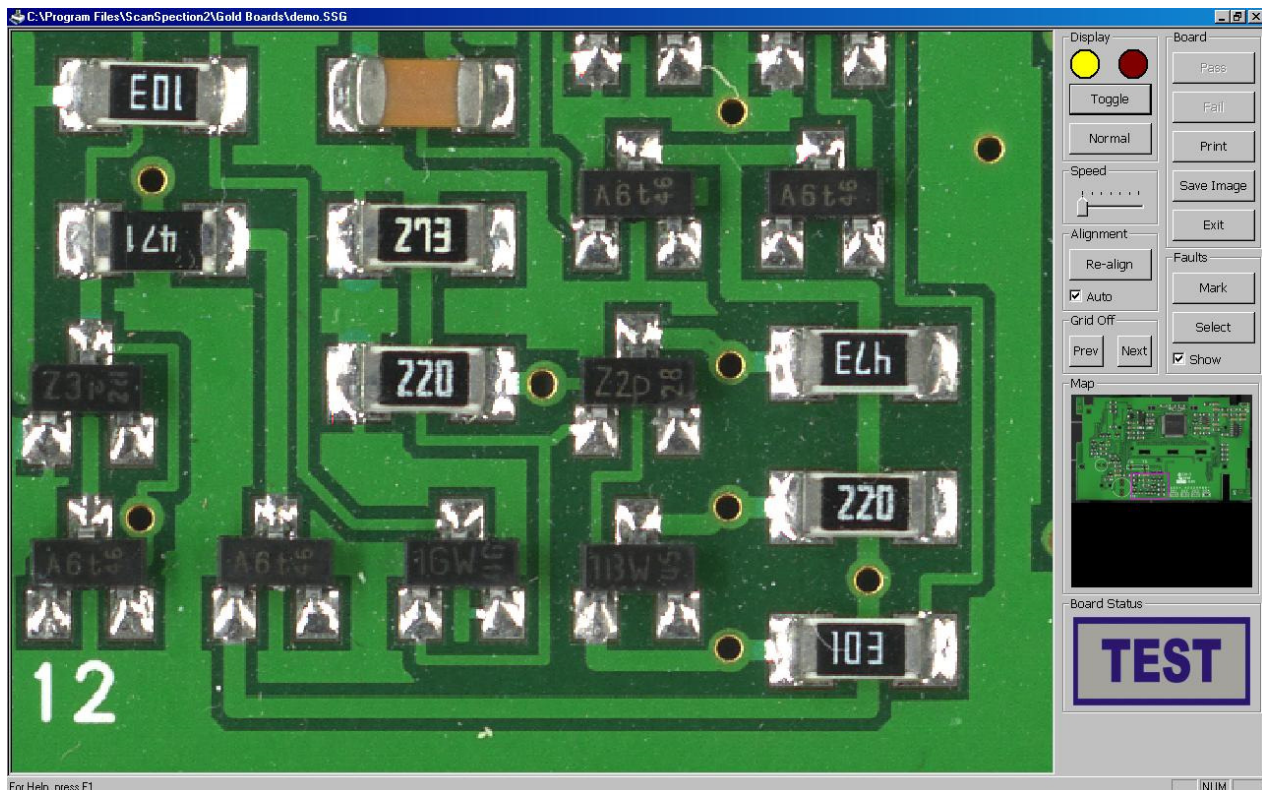

Board Testing

The operator chooses the board for inspection and is presented with a preview image detailing the board type and orientation. Once selected the user is prompted to position the board supports in the grid position learned during gold board creation. After the UUT has been scanned and aligned the operator steps through the predefined test routine. The board will display a failed status until all grids have been inspected and no faults have been highlighted. All pass and fail information is recorded prior to inspection of the next unit.

Typical Faults Found

Find Typical manufacturing defects - Shifted, Misplaced, Billboard, Tombstone, Bridging, Inverted, Wrong Polarity, Wrong Part, Missing , Bent Lead, Skewed and even Damaged.
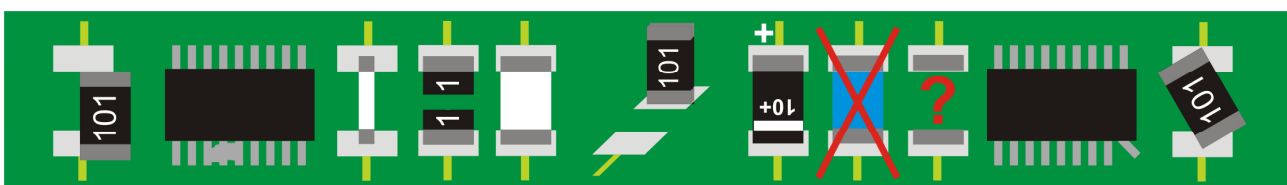
First Article Inspection

The FA-Inspector is a scanner-based optical inspection system used to automate first article inspections and subsequent production inspection tasks without programming.
.
The FA-Inspector has two primary modes of operation: Comparator Mode and AOI Mode. Both AOI and Comparator Modes generate comprehensive reports complete with error location marks, fault classifications including the full PCB image or XY layout for easy rework. Reports can be viewed, printed, saved or emailed to customers for rapid prototype review. Defect coverage includes, all SMT and PTH parts down to 01005, part presence/absence verification, part polarity and pin #1 orientation, part position and skew errors, laser marking, wrong part and device differences such as: labels and colour variations.
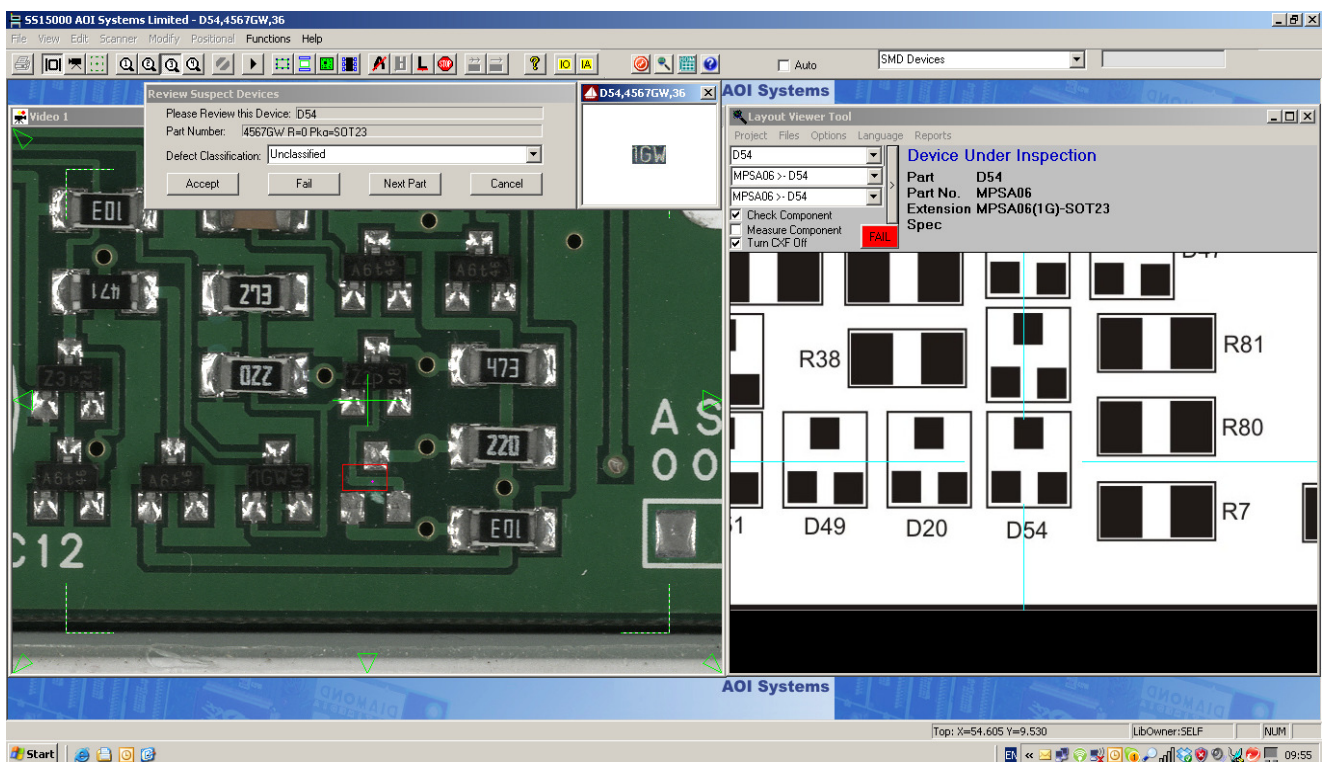
Typical Faults Found

Find Typical manufacturing defects - Shifted, Misplaced, Billboard, Tombstone, Bridging, Inverted, Wrong Polarity, Wrong Part, Missing , Bent Lead, Skewed, No Solder. and even Damaged.

BOM Comparison Tool (CXF Editor)

The CAD import facility requires only basic placement Information such as Ref ID, Part No, Package Type, X, Y and rotation. Any adjustments to scaling, rotation, polarity and positioning can be adjusted using the correct fields in the CAD exchange file. An enhancement to this feature is the BOM comparison tool which allows you to import either the CAD or Pick and place info and then compare that information to the electronic BOM.

A file will then be created with any errors between the XY and BOM files, and an import file will also be created with the merged information, automatically making the perfect document for First Article Inspection

Offline Inspection

Offline Inspection is made easy as the FA Inspection software allows the actual board for test to be saved in a TIFF format. The saved images and software are exactly the same as FA Inspection machine, making program creation and updates easy without impacting on the production schedule. Through time you can create the First Article Inspection on a bare board prior to the actual manufacture
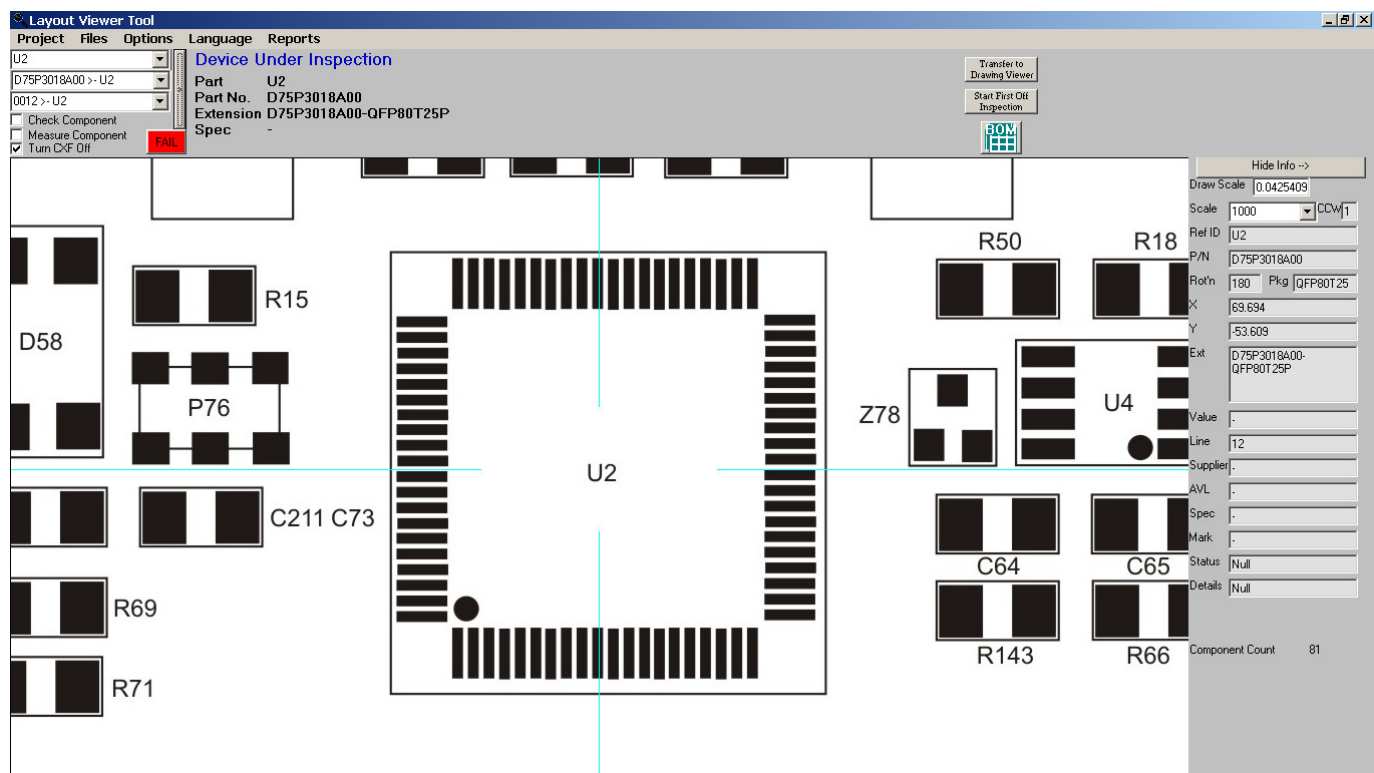
Board Layout Viewer

The layout viewer is another simple but very effective electronic tool that ensures that the inspection is being carried out is correct to not only to the BOM and XY Positions, but also polarity enabled devices have been placed in the correct orientation.

The software simultaneously displays the layout position and the position on the actual board, displaying the correct orientation and pin 1 position.

The PDF or JPG of the layout is loaded into the software, the XY information is then overlaid so that the actual board and the Layout file are the same size.

CAD Editor (Layout Viewer Tool)

CXF Layout Viewer tool is similar to the layout viewer, but the major difference being you can view all the details about each devices either by walk thru mode or by search mode. The CAD editor was originally designed for the AOI facility of the software, but is now being used by some customers as a simple First Article Inspection. This method however does not automatically create inspection routines for future First Article or production runs

AOI Systems - Specification

	A3 System	
Board Size	630mm x 495mm	
Inspection Area	420mm x 300mm	
Component Height	Up to 50mm	
Resolution	20 Microns Standard and 10 Microns Optional	
Lighting	Cold Cathode	
Power Requirements	110.240 Vac 5/10 A	
PC	Windows 7 I5 Processor or Better	
	4 Gb RAM	
	200 Gb Hard Drive	
	DVD/R	
	Network Card	
	LCD Monitor	
Operating System	Windows 2000, XP, Vista, 7, 8	
Software Options	ScanSpection Comparator Software	
	ScanSpection AOI Software	
	FA , BOM & CAD Viewer Software	
Dimensions (mm)	700mm x 555mm x 305mm	
Options	Offline Programming	
	Offline Inspection	

AOI Systems Limited
Automated Optical Inspection
Unit P Minerva Works
Johnstone
Renfrewshire
PA5 8HP UK
Tel: +44 (0) 141 416 5113
info@aoisystems.com
www.aoisystems.com