TRI innovation

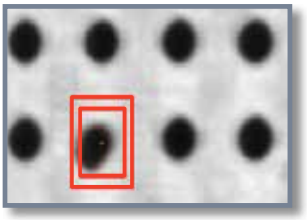
TR7600LL SIII
SERIES

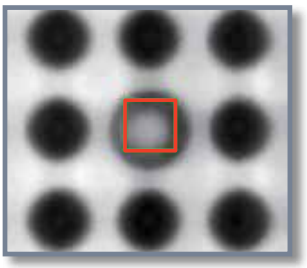
- Ultra-high Speed 3D CT X-Ray Inspection
- Excellent Image Quality
- True 3D Solder Joint Viewer
- Extra Large Board Inspection
- High Resolution for 01005in Chips

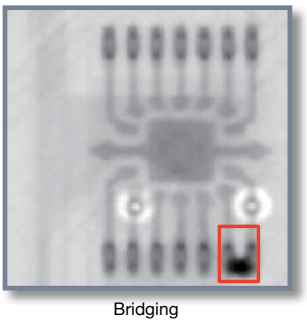
AUTOMATED
X-RAY INSPECTION

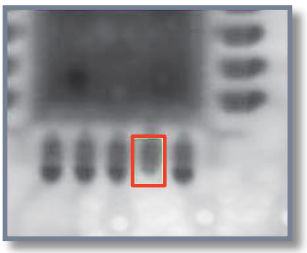
TR7600LL SIII FEATURES

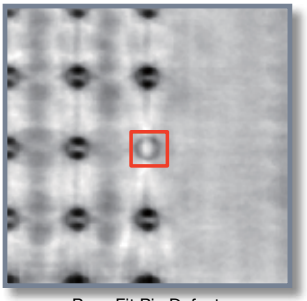
Defect Symptom Images

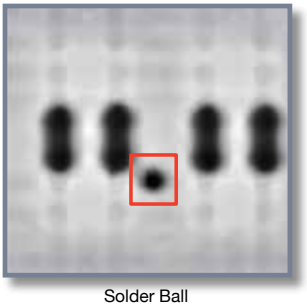

BGA Head-In-Pillow


BGA Void


Bridging


QFN Open


PressFit Pin Defect


Solder Ball

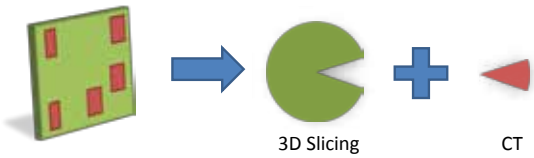
Line Speed 3D X-ray Solution

TRI has worked with mission critical equipment makers to design the TR7600LL SIII - a line speed 3D CT X-ray solution for SMT lines around the world.

Combining the industry's fastest X-ray imaging, a new robust hardware platform and a redesigned intuitive software, TRI introduces the next generation inspection platform to ensure the quality of every produced PCB.

The Winning Inspection Strategy

- Ultra high speed 3D imaging
- Selective planar CT inspection
- Automatic defect evaluation
- Intuitive programming and fine tuning
- Large PCB support

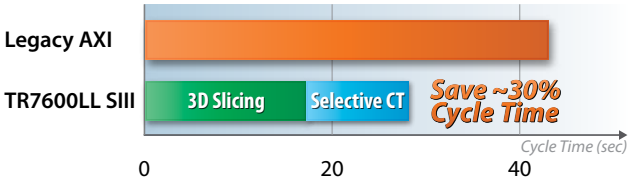


Peak 3D Inspection Efficiency

TRI's combination of 3D slicing and Planar CT allows TR7600LL SIII to deliver shortest cycle times and leading inspection coverage.

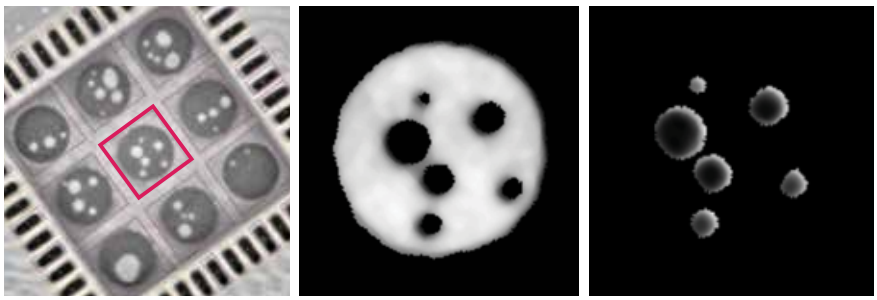
The combined strategy reliably inspects multi layer PCBs, overlapping components , THDs and high-density connectors.

TR7600LL SIII Series Inspection Time Comparison
(255x245 mm sample, internal comparison)

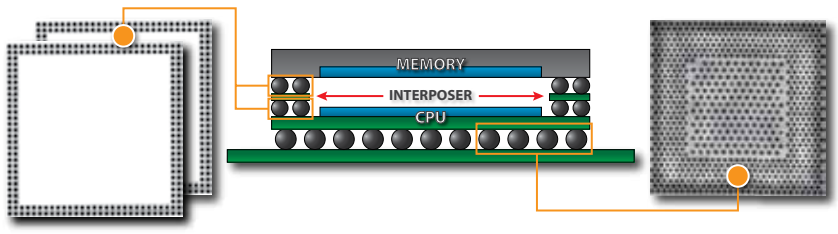


Enhanced Defect Detection

Advanced inspection algorithms analyze both 3D slice images and Planar CT 3D data for reliable inspection results. With access to volumetric 3D information, the TR7600LL SIII can directly verify solder and void volume, as well as examine complex 3D structures found on many new PCB assemblies. TRI's intelligent fine tuning assistant helps intuitively adjust inspection parameters for stable and dependable inspection.



Solder voiding inspection and analysis using 3D and CT images

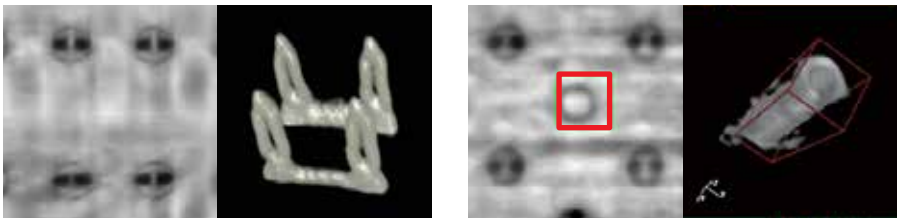


3D CT Inspection Optional Upgrade

Enhanced 3D inspection with planar CT imaging can recreate a complete 3D model of each solder joint, enabling clear analysis of shape irregularities, head-in-pillow and voiding problems. Vertical cross-section CT images help with reliable visual review of borderline and buried solder joints.

Enhanced Defect Visualization with CT

CT data processing helps clearly visualize solder defects such as voiding, bridging and deformities.



3D CT displays solder joints and defects in much more detail than traditional 3D X-ray slicing

Eliminate Board Warp Issues

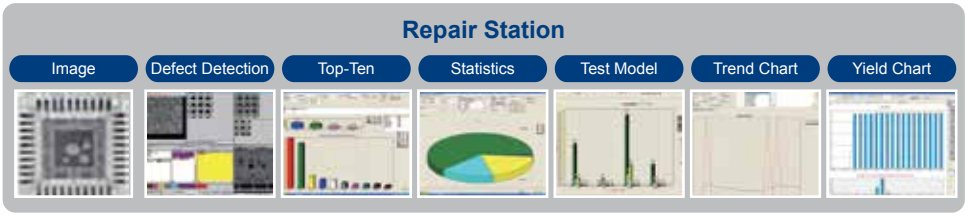
The TR7600LL SIII uses multiple laser sensors to accurately measure any PCB assembly deformation and automatically adjusts component inspection parameters to compensate for local board warpage. This ensures reliable inspection of the most complex boards with overlapping and multi-layered components and heavy PressFit connectors.

Radiation Safe Design

Designed with safety in mind, TRI's AXI systems have full lead shielding which prevents harmful exposure in everyday use and reduces X-ray leakage below background radiation levels of 0.5 µSv/hr. The certified safety design conforms to USFDA Code of Federal Regulations Title 21, Part 1020.40.

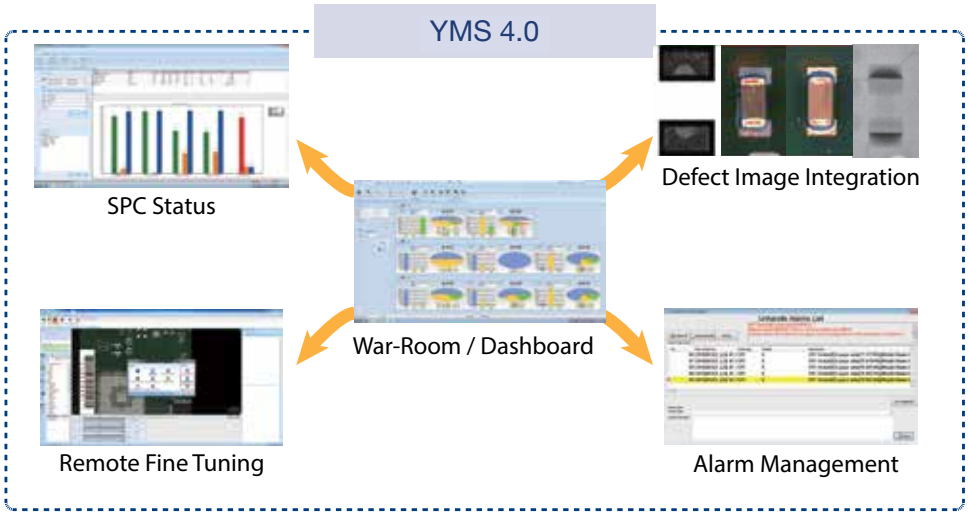
Repair Station

The TR7600LL SIII collects a wide range of inspection data to offer instantaneous process monitoring and analysis. This integrated approach offers clear statistical feedback that improves defect management and enhances the efficiency of the inspection process.

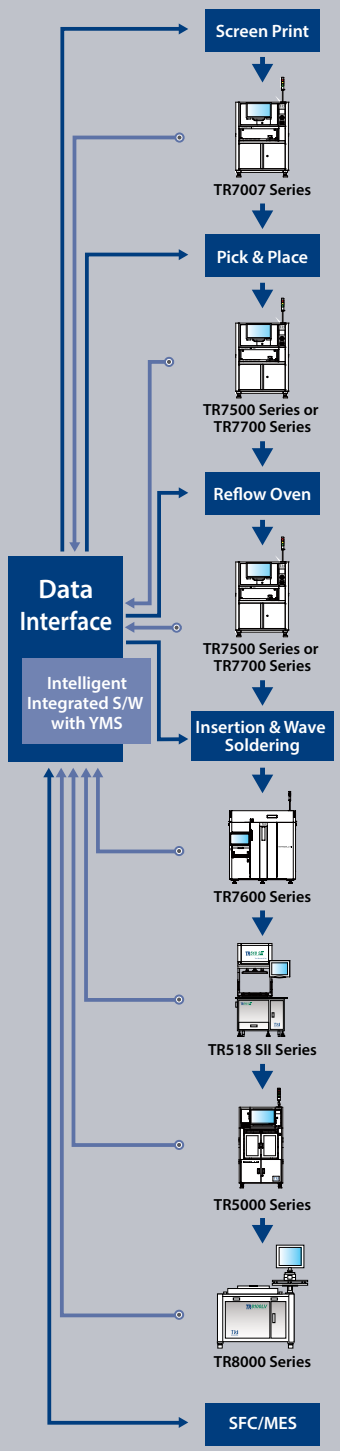


Industry 4.0 Production Line Integration

YMS 4.0 lets TRI inspection solutions interface and share inspection data with the shop floor system and other inspection machines. With the central console an operator can control, track, analyze and optimize the inspection process across the entire production line and obtain real actionable data to optimize production quality in the Industry 4.0 environment.



Yield Management System



- Inspection results and data integration
- Real time SPC and production yield management
- Quality reports and closed loop tracking
- Support defect component analysis and improvements
- Knowledge Management (KM)
- Productivity and Quality Management

X-Ray & Imaging System

X-ray Source	130 kV max (user adjustable)
Image Resolutions	7 µm,10 µm,15 µm, 20 µm (3 settings factory configured)
Camera	High-performance, ultra-sensitive line-scan cameras

Inspection Functions

Component Level Defects	Missing, Misalignment, Tombstone, Billboard, Tantalum Polarity, Rotation, Floating
Joint Level Defects	Insufficient/Excess Solder, Bridging, Open, Solder Ball, Non-wetting, Void, Lifted Lead

X-Y Table & Control

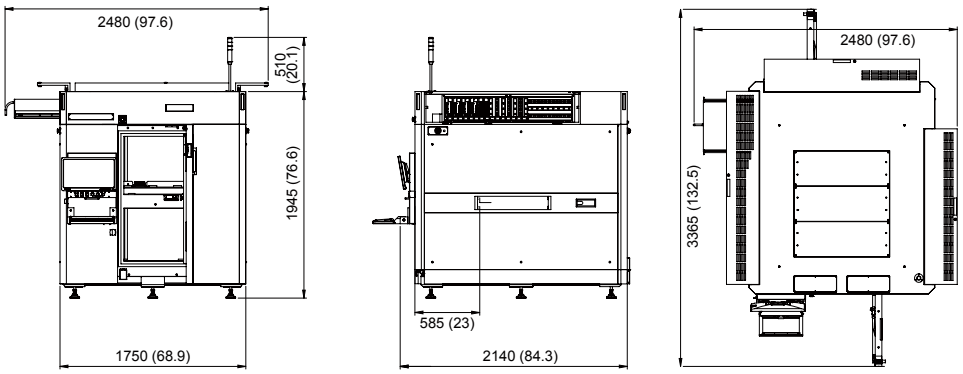
High-precision ballscrew + AC servo with motion controller	
X-Y Axis Resolution	1 µm

PCB & Conveyor System

Max. PCB Size		1000 x 660 mm (39.3 x 26.0 in.)
PCB Thickness		0.6 - 7 mm
PCB Transport Height		880 - 920 mm (34.6 - 36.2 in.)*
Max. PCB Weight		12 kg (26 lbs) [15 kg (33 lbs) optional]
PCB Carrier/Fixing		Step motor driven conveyor & pneumatic clamping
Clearance		
Top	20 µm	50 mm (1.97 in.)
	15 µm	30 mm (1.18 in.)
	10 µm	15 mm (0.59 in.)
	7 µm	7 mm (0.28 in.)
Bottom		70 mm (2.75 in.)
Edge		3 mm (0.11 in.) [5 mm (0.20 in.) optional]

* SMEMA Compatible

Dimensions



Unit: mm (in.)

Weight	4500 kg (9920 lbs)
Power Requirement	200 - 240 VAC three phase, 50/60 Hz, 7 kVA (346-416 VAC optional three phase transformer)
Air Requirement	72 psi - 87 psi (5 - 6 bar)

Optional Accessories

Barcode Scanner, Repair Station, Offline Editor & Yield Management System (YMS 4.0), YMS Lite, CAD Convertor, CT Imaging

TRI has a patent in System and Method for Laminography Inspection

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