

# TR7600 SIII SERIES

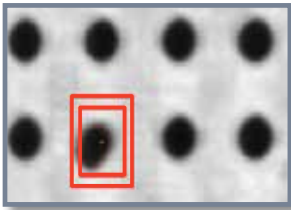


- Ultra-high Speed 3D CT X-Ray Inspection
- Excellent Image Quality
- True 3D Solder Joint Viewer
- High Resolution for 0402mm/01005in Chips

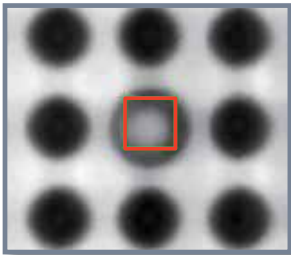
**AUTOMATED  
X-RAY INSPECTION**

# TR7600 SIII FEATURES

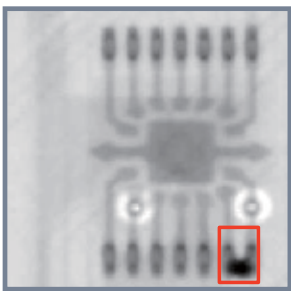
## Defect Symptom Images



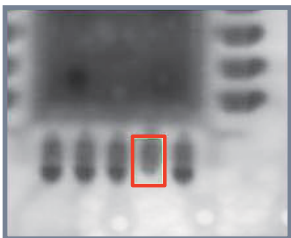
BGA Head-In-Pillow



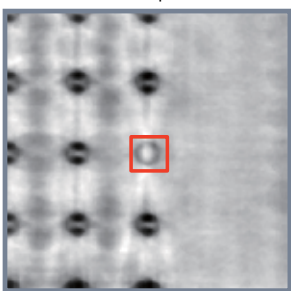
BGA Void



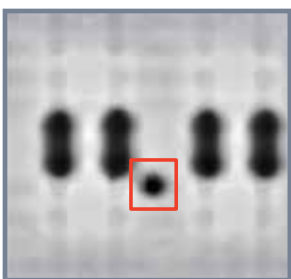
Bridging



QFN Open



Press Fit Pin Defect



Solder Ball

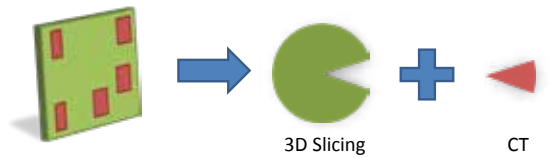
## Line Speed 3D X-ray Solution

TRI has worked with mission critical equipment makers to design the TR7600 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

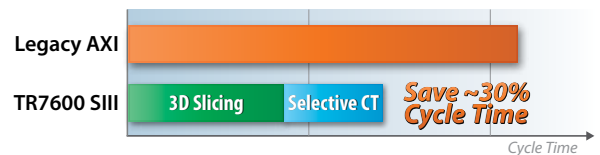
- Ultra high speed 3D imaging
- Selective planar CT inspection
- Automatic defect evaluation
- Intuitive programming and fine tuning
- Large PCB support



## Peak 3D Inspection Efficiency

TRI's combination of 3D slicing and Planar CT allows TR7600 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.

### TR7600 SIII Series Inspection Time Comparison (255x245 mm sample, internal comparison)

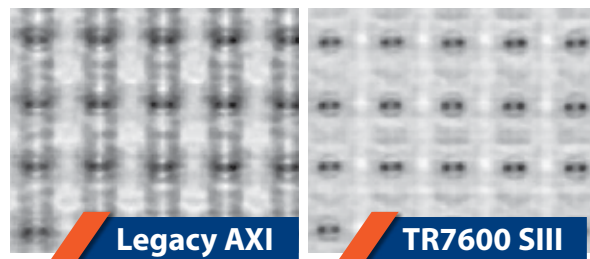


## Enhanced Defect Detection

Advanced inspection algorithms analyze both 3D slice images and Planar CT 3D data for reliable inspection results. With access to volumetric 3D information, the TR7600 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.



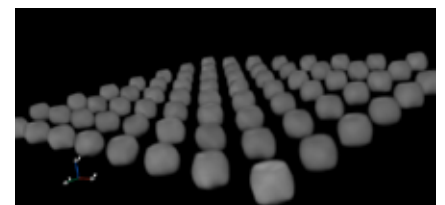
Solder voiding inspection and analysis using 3D and CT images



TR7600 SIII delivers improved 3D image quality for shielded components and high-density connectors

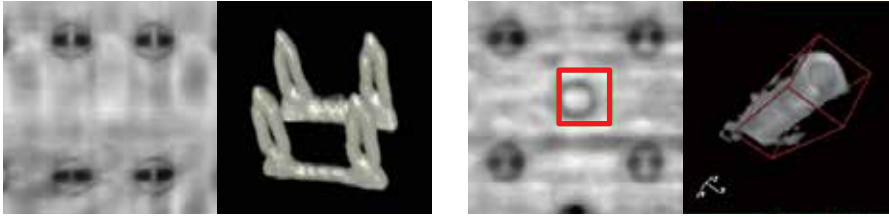
## 3D CT Inspection Optional Upgrade

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

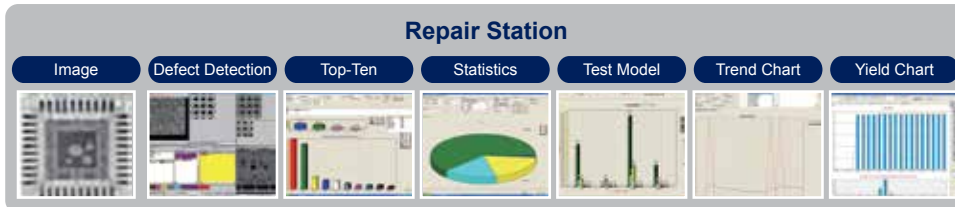
The TR7600 SIII use multiple laser sensors to accurately measure any PCB assembly deformation and automatically adjusts component inspection parameters to compensate for local board warpage. This ensures reliable inspection of the most complex boards with overlapping and multi-layered components and heavy press-fit connectors.

## Designed for Operator Safety

Designed with safety in mind, TRI's AXI systems have a number of fail-safe features preventing injury or board damage. Full lead shielding prevents harmful exposure in everyday use and reduces X-ray leakage below background radiation levels of 0.5  $\mu$ Sv/hr. The certified safety design conforms to USFDA Code of Federal Regulations Title 21, Part 1020.40.

## Repair Station

The TR7600 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.



## Yield Management System 4.0

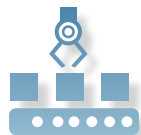
YMS 4.0 provides a M2M centralized inspection monitoring and remote access fine tuning throughout the SMT line. Built-in support for SPI, AOI, AXI and ICT systems helps track Alarms and SPC data to simplify production quality monitoring. YMS 4.0 is TRI's Industry 4.0 closed loop software to assure your production line inspection quality and efficiency.



INCREASE  
EFFICIENCY



REDUCE  
MANPOWER



LEANER  
PRODUCTION LINE

The Yield Management System allows operators to aggregate information from individual TRI inspection systems for statistical analysis of production line defect rates, reviewing and fine-tuning inspection results, and identifying component defect trends and emerging production issues.



PRODUCTION  
ANALYSIS

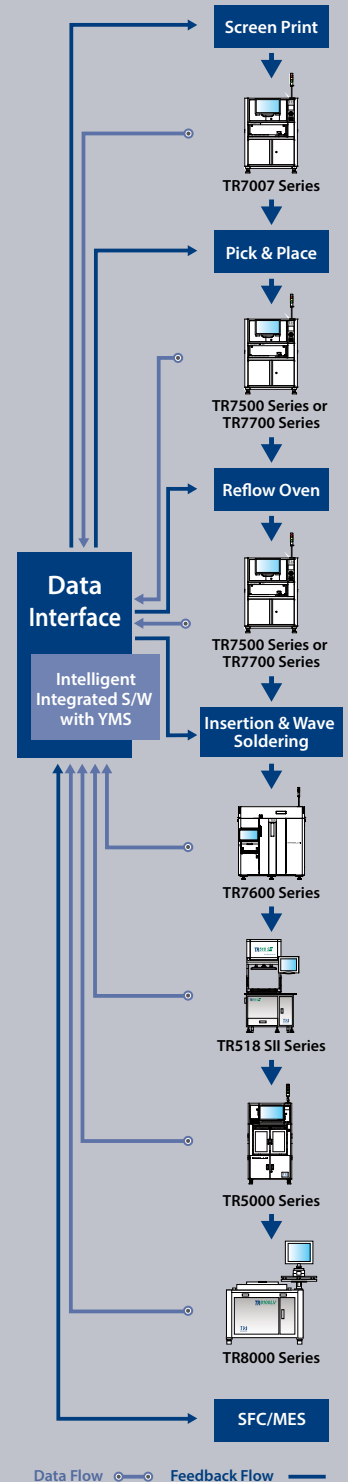


CENTRALIZED  
INSPECTION CENTER



REAL TIME SPC  
TREND

## 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 (choose 3 resolutions)
Camera	Ultra-High Speed Line-Scan CCD Cameras (3 or 5 Units)

## 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

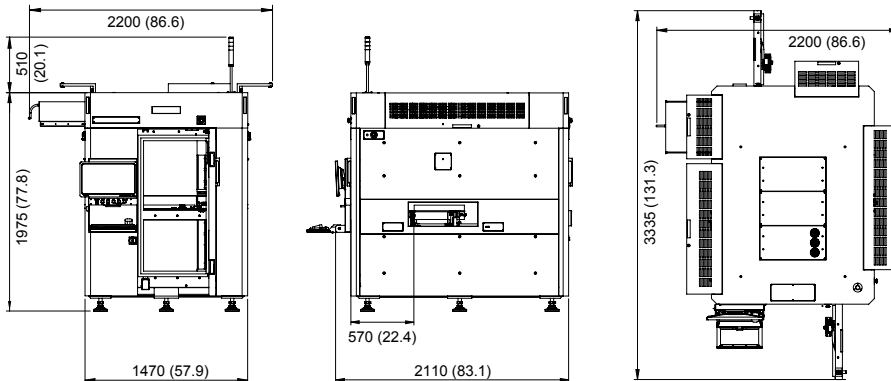
High-precision ballscrew + AC servo with motion controller	
X-Y Axis Resolution	1 μm

## PCB & Conveyor System

Max. PCB Size	900 x 460 mm (35.4 x 18.1 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)	
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.) or 5 mm (0.20 in.)

\* SMEMA Compatible

## Dimensions



Unit: mm (in.)

Weight	3850 kg (8488 lbs)
Power Requirement	200 - 240 VAC single phase, 50/60 Hz, 4 kVA
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 Converter, CT Imaging

TRI has a patent in System and Method for Laminography Inspection

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**TRI 德律 TRI INNOVATION**

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