TR7600XLL SII SERIES

- Ultra-Fast 3D Inline AXI
- Precise 3D CT Imaging
- Rapid Intelligent Programming
- Extra Large Board Inspection
- Automated Defect Evaluation

AUTOMATED X-RAY INSPECTION
Inline 3D Automated X-ray CT Inspection
- Ultra fast inline automated X-ray inspection of PCBAs
- 2D + 3D images using multiple bidirectional angled cameras
- Automated inspection and pass/fail evaluation
- User selectable X-ray power up to 130 kW/300 µA
- Patented 6-axis motion control for maximum flexibility
- Edge-to-edge large board inspection up to 1000 x 660 mm
- Advanced 3D CT capability for vertical slicing of complex solder joints

Intelligent Software Solution
- Intelligent detection of solder and assembly defects
- Automatic image quality enhancement for overlapping components and complex defects
- Automatic board warp compensation
- Automated 3D slice extraction

Defect Detection Capability

Components
- BGA/CGA/LGA
- Flip Chip
- PoP
- QFN
- PressFit/Ventura Connectors
- 0402mm/01005in. Chip
- Fine Pitch
- Components/µBGA
- Gullwing and J-lead
- Solder Joints
- PTH

Defect Symptoms
- Head-in-Pillow
- Opens
- Bridging
- Voids
- Solder Balls
- Barrel Fill
- Insufficient/Excess Solder
- Misalignment
- Wrong Size Parts
- Reversed Polarized Capacitors
- Tombstones
- Billboards
- Missing Components

Patented 6-axis Motion Control
TRI’s unique motion control system provides clearest images of multi-layer PCBAs and overlapping components, enabling reliable automated inspection of dual-side PCB assemblies without typical shadowing issues.

BlockScan Customized Imaging
BlockScan module enhances AXI test program coverage by re-scanning selected areas of the tested board using customized system settings. This improves image quality and automated defect detection for most complex PCBAs, including fine pitch µBGAs, PressFit and metal shielded components. Using BlockScan, TRI AXI can reliably inspect up to 3-layer PoP packages.
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.

Eliminate Board Warp Issues

The TR7600XLL SII 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 TR7600XLL SII 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.

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.
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 bidirectional 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 ball screw/servo motor with DSP-based motion controller

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

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<thead>
<tr>
<th></th>
<th>Top</th>
<th>Bottom</th>
<th>Edge</th>
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<tbody>
<tr>
<td>20 μm</td>
<td>50 mm (1.97 in.)</td>
<td>70 mm (2.75 in.)</td>
<td>3 mm (0.11 in.) or 5 mm (0.20 in.)</td>
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<tr>
<td>15 μm</td>
<td>30 mm (1.18 in.)</td>
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<tr>
<td>10 μm</td>
<td>15 mm (0.59 in.)</td>
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<tr>
<td>7 μm</td>
<td>7 mm (0.28 in.)</td>
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* SMEMA Compatible

Dimensions

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), 3D CT Upgrade Kit

TRI has a patent in System and Method for Laminography Inspection

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TRI INNOVATION

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