

Visionscape™ BGA Inspection

Product Summary

The Visionscape™ BGA inspection system is designed to meet the needs of BGA (Ball Grid Array) device manufacturers and OEM equipment suppliers for accurate and repeatable sphere measurements, and device quality inspection.

Built on the high-performance Visionscape™ machine vision platform, Visionscape™ BGA Inspection is a complete turn-key solution for inspection of BGA devices throughout the manufacturing process ensuring high yields with zero post assembly defects. This product offers BGA manufacturers and OEMs the required flexibility to

handle the ever increasing variety of BGA devices. The system is capable of inspecting bumps on standard BGA devices, CSP devices, wafer scale devices, flip chip die and wafers themselves. The Visionscape™ BGA Inspection system incorporates all the required features for 100% Ball Grid Array inspection including checking for presence/absence of solder

spheres, extra spheres, sphere placement accuracy, sphere diameter, pitch and sphere quality.

This system is capable of extremely high throughput, performing detailed inspections of over 2000 spheres or bumps per second. The Visionscape™ BGA Inspection system is extremely flexible, enabling inspection of any device size, shape or bump pattern, and offers accuracy and repeatability capable of meeting or exceeding industry requirements.

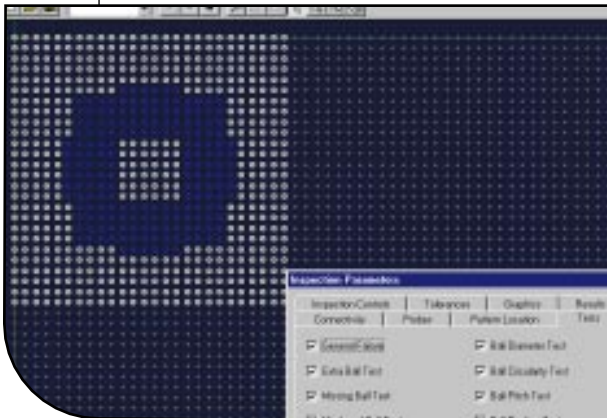
The Visionscape™ BGA Inspection system is delivered on the Acuity 2000 vision processor. This high performance vision processor used throughout the entire Visionscape™ product line delivers the functionality of a complete vision system in a single PCI bus slot of a host PC running Windows® NT/95. It supports a variety of machine vision cameras and offers on-board accelerated vision processing, I/O, communications, networking, and display.

Features/Benefits

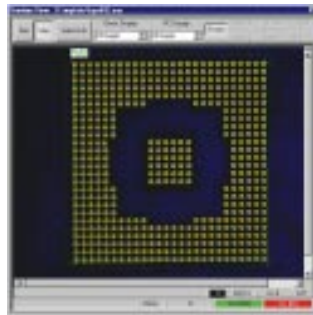
- Complete turnkey BGA inspection solution
- Comprehensive BGA inspections
- Sphere presence/absence
 - Extra spheres
 - Placement accuracy
 - Sphere diameter & pitch
 - Sphere quality
- Delivered on RVSI Acuity CiMatrix high-performance vision processors
- Fits in one PCI slot of host PC
- Windows NT/95 GUI
- Special purpose BGA inspection lighting

Specifications

- Speed - Up to 2500 spheres per second at 100% inspection
- Ball Placement Accuracy
 - 0.001" @ 3 sigma
- Ball diameter Accuracy
 - 0.0015" @ 3 sigma
- Tolerance Measurements
 - Maximum X Offset
 - Maximum Y Offset
 - Maximum Radial Offset
 - Minimum Diameter
 - Maximum Diameter
 - Minimum Pitch
 - Maximum Circularity Error
 - Missing Ball
 - Extra Ball
 - Misplaced Ball
- User Definable Reporting
 - Coded Digital Output
 - Device Level Reporting
 - Ball Level Reporting



Visionscape™ BGA Inspection

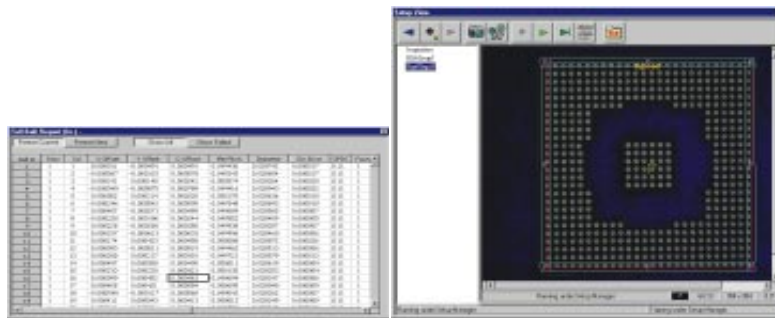


The Visionscape™ BGA Inspection system includes a comprehensive Window® NT/95 Graphical User Interface for point and click device geometry teaching, inspection selection, tolerance setting, reporting and runtime monitoring.

Visionscape™ BGA is easily integrated into a wide variety of OEM products including sphere attach equipment, part handling equipment, test equipment, singulation equipment and media transfer equipment. The Graphical User Interface (GUI) can be readily modified to seamlessly work alongside an OEM's existing interface.

Under the Visionscape™ architecture, ActiveX™ Controls encapsulate the core vision system functionality and user interface required to develop and deploy applications. Users of the Visionscape™ BGA environment get programming access to these ActiveX™ components which they can optionally use for customization by dropping the appropriate components into a Visual Basic® or Visual C++® application.

RVSI Acuity patented lighting module designed specifically for the BGA inspection process, ensures even illumination across the entire field of view thereby ensuring the most accurate and repeatable measurements.



A robust calibration process correct for camera perspective and provides measurements in real world units. A user-definable reporting module provides statistical device and ball measurement data which may be easily integrated with factory-wide Statistical Process Control (SPC) and data collection systems.

Host-PC Requirements

Pentium class CPU (266 MHz or higher), one open full length PCI slot, Microsoft Windows® NT 4.0 or Windows 95 operating system

Acuity 2000 Vision Processor

- Single slot PCI card
- High performance vision engine off-loads host PC
- Acuity ASIC accelerates all vision processing for throughput & robustness
- Multiple inspections per board & multiple boards per PC
- Supports analog & digital cameras
- On-board digital I/O, analog outputs, serial ports, display, and TCP/IP networking

Visionscape™ Software

- Broad collection of high-level vision and automatic identification tools
- Windows NT/95 GUI for vision application development & deployment
- ActiveX™ components encapsulate functionality for easy customization with Visual Basic or VisualC++
- Open software architecture reduces integration costs, speeds time to market & deployment for OEM and factory floor users



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