

About Datest

Datest is the preeminent provider of integrated test, test engineering, and X-ray inspection services for Silicon Valley and beyond, since 1984.

We serve the EMS Provider and OEM Markets with multiple PCBA and subsystem test capabilities, including In-Circuit, Functional, Flying Probe Test, X-ray Inspection (2D, 3D, CT-Scan, and 5DX AXI) and Boundary Scan.

We also provide Value-Added Services:

- ▶ Industrial Microfocus CT Scanning Services
- ▶ Troubleshooting, Diagnosis, Debug and Rework of Failed Boards and "Bonepiles"
- ▶ DFM and DFT analysis
- ▶ Reverse Engineering Services
- ▶ Center of Expertise for Goepel Boundary Scan Products and Applications
- ▶ Counterfeit Component Detection Services
- ▶ Nondestructive and Destructive Failure Analysis

Datest is AS9100D:2015 and ISO9001:20015 certified, as well as ITAR registered.



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X - R A Y

S E R V I C E S

Integrated
Testing and
Imaging
Solutions



X-Ray
Inspection
CT-Scan
Digital
Radiography
Nondestructive
Failure Analysis
and Dispute
Resolution
SERVICES

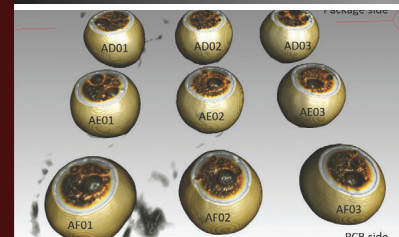
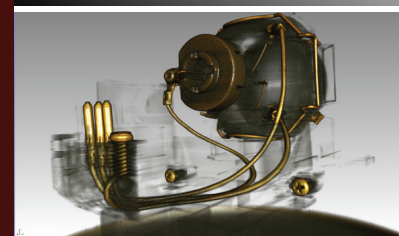
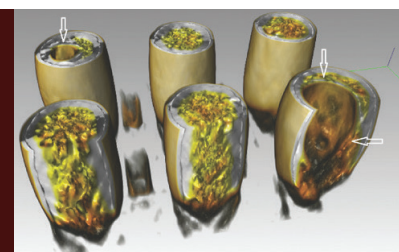
Winner Circuits Assembly
Service Excellence Award (SEA):
2016, 2018, 2019, 2020, 2021,
2022 (In the category of Test
Laboratories)

Winner Global SMT & Packaging
Global Technology Award: 2011,
2013, 2015, 2018, 2019, 2021
(In the category of Test Services)

Winner Circuits Assembly NPI
Award: 2011, 2012, 2017

Winner Mexico Technology
Award: 2019, 2021, 2022

www.datest.com



TEST ENGINEERING. FAILURE ANALYSIS. ANSWERS.

X - R A Y S E R V I C E S

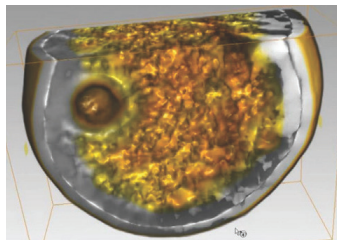
Capabilities

Electronics/PCBA's

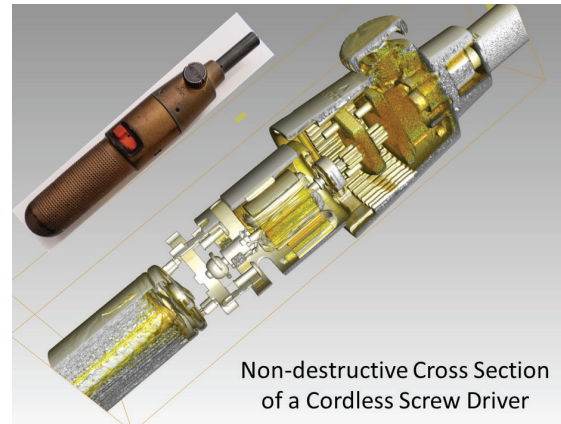
- ▶ Failure Analysis (Board-and Component-Level)
- ▶ Identification and Isolation of Microcracks
- ▶ Analysis and Measurement of Voids in BGAs, CGAs, QFNs, CSPs, LGAs, etc.
- ▶ Inspection of Solder Joints for Opens, Shorts, Excess and Insufficient Solder, and Missing Components
- ▶ Identifying Head-In-Pillow (HiP) Defects
- ▶ Isolation and Inspection of Package-on-Package (PoP) Defects
- ▶ Analysis of Connector Cracking and Other Defects
- ▶ Examination of Individual Board Layers
- ▶ Counterfeit Component Detection
- ▶ Production, NPI, and One-Board ("One Off") Applications

Other Industry Applications

- ▶ Serving Aerospace, Biotechnology, Medical, Materials Science, Automotive, Academia, Government and more
- ▶ Fault Finding/Root Cause Analysis
- ▶ Defect Detection
- ▶ Metrology
- ▶ Mechanical Engineering
- ▶ 3D Additive Manufacturing

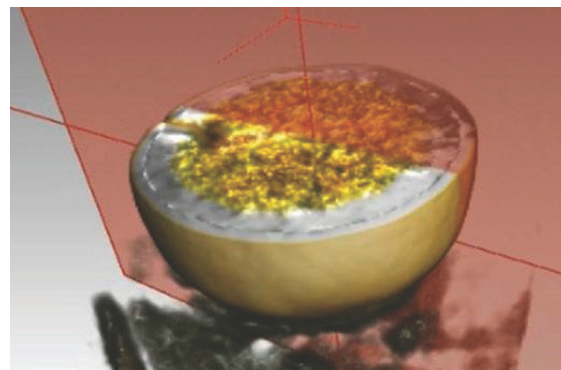


3D Image of BGA ball with void



Equipment

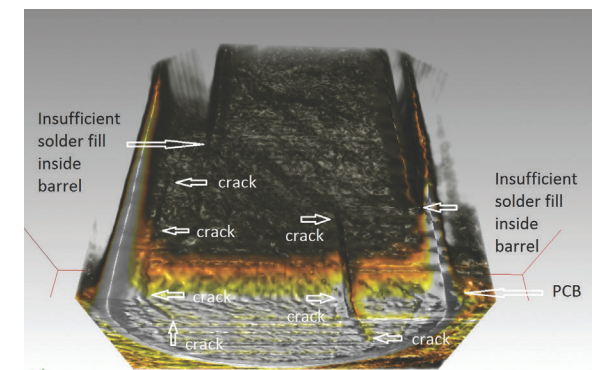
- ▶ VJ Technologies High Precision Microfocus DR/CT System with Vi3DR, Volume Graphics VG Studio MAX, and Fraunhofer VOLEX CT Software
- ▶ Nordson Dage XD7600NT500 Ruby X-ray Inspection System With X-Plane Technology 4X-Plane 3D CT Scan Workstation
- ▶ Keysight (Agilent) 5DX Series 5000 Automated X-ray Inspection (AXI)
- ▶ High-Energy Imaging Services, up to 9MeV (in partnership with VJ Technologies)



Nondestructive X-axis slice thru 3D image of BGA ball

Advantages

- ▶ Precise Fault Detection and Image Capturing (2D, 3D and CT-Scan)
- ▶ Virtual (Non-Destructive) Micro-Sections 4.5um Feature Recognition ("Spot Size") 4Full 3D Reconstruction of Areas of Interest Using Digital Tomosynthesis
- ▶ Enables Fault Verification only Hinted at by Less-Powerful X-ray Systems
- ▶ Up to 6400 Discrete Slices per Area of Interest
- ▶ Swift Process Validation and Benchmarking
- ▶ Definitive Dispute Resolution
- ▶ Quick Turnaround Service, Often Within Hours
- ▶ Programmed and Manual Operating Modes
- ▶ Aids Reverse Engineering of Obsolete or Non-archived PCBAs and Other Objects Available



Thru Hole 3D Bottom View Showing Cracks and Insufficient Solder