

# Keysight In-Circuit Test Suite

You Hold the Key to Better Test



## Keysight ICT Solutions

### x1149 Boundary Scan Analyzer

Desktop boundary scan tester that can be used in various stages of the product life cycle, from R&D to Manufacturing to Field repair, for testing major ICs using boundary scan test methods.



### i1000D Small Footprint Inline ICT

Small and reliable inline automated in-circuit test at affordable price. Full analog tests and good digital test signal quality with latest Keysight ICT test.



### i1000D ICT

Low-cost, simple and easy-to-use in-circuit test platform with latest state-of-the-art Keysight ICT test technologies found in high end testers.



### i3070 Series 5i Inline ICT

Automated inline 2-module in-circuit test system based on the award-winning i3070 Series 5. Short wire fixture technology ensures transportability, repeatability and stability. Innovative design ensures easy maintenance and fixture change.



### i3070 Series 5

Synonymous to in-circuit test, the i3070 is the most recognized brand name in the market. Continues to pioneer technologies that industry peers look up to.



For over 25 years, its capability is attested by thousands of systems deployed worldwide. Advocates maximum upgradability and compatibility, to extend and protect your capital investment.

## Specialized ICT Solutions

The Mini In-Circuit Test System is a portable, scalable, compact, benchtop ICT, ideal for R&D prototyping, repair and functional test integration.



Need to access over 10,000 nodes with i3070? Your Series 3 or Series 5 can be easily upgraded to an ultra-high pin count test system. Double your capacity at a fraction of the cost compared to buying a new, dedicated test solution.



## Measurement Features and Solutions



### Throughput Multiplier

Increases production line throughput by testing multiple boards in a panel in parallel



### Short-wire Fixturing

Produces higher signal integrity, more stable tests, easier replication with less debug, and greater accuracy at the DUT interface



### Silicon Nails

Test non-boundary scan-enabled devices using adjacent devices, which are boundary scan-enabled, acting as drivers and receivers.



### Cover-Extend Technology

The most popular boundary-scan and vectorless test combination that tests ICs and connectors without test access. Quickly develop test for small packages (eg BGA, miniature connectors) with limited test access



### Bead Probe Technology

Increase your test access and coverage at zero cost! Keysight is the first to answer the call for more test point accessibility on today's densely populated Printed Circuit Boards (PCBs). Bead Probe Technology specifies how test targets, or bead probes, can be placed directly onto copper signal traces, providing test access points virtually anywhere on a board layout, resulting in superior test coverage.



### Scan Path Linker

With your integrated scan path linker, you have the power to maximize test coverage on interconnect nodes between scan chains by linking them into one; test coverage that you won't otherwise have if the chains were treated separately.

### LED Test Technology





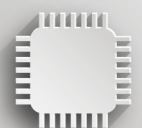
The most user-friendly, fastest and most accurate LED test solution in the industry that measures component color and analyzes complex LED patterns of the LEDs when powered up.



# Manufacturing Test Insights

Keysight Technologies in-circuit test (ICT) solutions uphold the innovative spirit of bringing you technology for tomorrow's board test challenges. With over 30 years of ICT expertise, we continue to lead the industry with innovations that preserve your investments, even those from HP and Agilent days!

Whether it's high speed or high-powered devices on increasingly miniaturized PCBAs giving you hardly any test access, or rising popularity of flexible PCBs which bring their share of challenges like connector solder joint open or cracking issues, or needs for better boundary scan, you can count on us to be your board and functional test partner, from design to manufacturing. No matter which industry you are in, we're here to serve you.

INDUSTRIES		INDUSTRY CHALLENGES	KEYSIGHT ICT TECHNOLOGIES AT WORK	MOST COMMONLY-USED ICT SOLUTIONS
Contract/ original design manufacturing		Cost, time-to-volume and flexibility are core daily challenges for OEMs and ODMs who serve all arenas, from mission-critical aerospace/defense and automotive electronics to highly cost-sensitive consumer electronics. You need assured capital investment protection and high uptime.	Flexibility and modularity enable scalable testing of boards from small to very high node-counts of up to 10,368 nodes. Throughput multiplier technology doubles your throughput without increasing your hardware investment. Exceptional upgradability and compatibility help to extend your investment's product life as technology evolves.	● ● ● ● ● ● ● ●
Servers, netcom, cloud computing		Large boards with high node counts in excess of 5,000 are common in this sector. You need the ability to test surface mount connectors reliably and effectively carry out structural test in the absence of available test nodes. Your challenge is handling high on-board signaling speeds, which make test pads undesirable.	Keysight's comprehensive Limited Access Test software suite provides the industry's widest range of coverage. Cover-Extend Technology, IEEE 1149.1 & 1149.6, Silicon Nails, DriveThru, Bead Probes and Access Consultant are all field-proven to help you effectively capture defects on limited access boards. Boards in excess of 5K nodes can be tested with our high-node-count option. The benefits? Improved test coverage using fewer test resources and reduced fixture cost at the same time.	● ● ● ● ● ● ● ●
Automotive electronics/ industrial automation		In this competitive arena, accurate, reproducible and repeatable results across multiple production lines are musts, besides being adaptive to growing board complexity and shorter cycle times. Automotive boards see numerous variants per production run, which stretch over years. You need an ICT solution that also offers functional test and flash programming options to optimize your test strategy.	Patented short-wire technology with automated calibration ensures your measurement performance is easily replicated throughout different manufacturing sites. Be it increasing throughput, test capacity or integrating advanced/specialized test techniques, our scalable platform is designed to grow with your needs to meet future challenges.	● ● ● ● ● ● ● ●
Consumer electronics/ gaming & set-top boxes		A very cost-conscious environment with high volume panelized small boards. Powered testing and programming are mandatory, since costly SoC devices are becoming common place on these products. You need a cost-effective way to catch defects which escape expensive imaging inspection techniques.	You can rely on our industry-endorsed panelized software and throughput multiplier. Keysight's broad range of ICT solutions offer you powered test and easy programming, boundary scan and VTEP v2.0 to support SoC testing. Enjoy low fixture cost, economical and scalable test solution and rapid test development cycles.	● ● ● ● ● ● ● ●
Mobile computing SSD/ DDR & embedded test		In this compacted world, complex, non-accessible BGAs and soldered memories are crammed onto shrinking PCB real estate, leading to increasing manufacturing defects. These, coupled with increased presence of high speed signal nodes and high powered devices pose new challenges. You need to redefine your test strategy and methods for these products.	We offer innovative embedded tests, including digital tests through boundary scan, Silicon Nails and a comprehensive VTEP vectorless test suite to help you achieve greater test coverage even when access points are diminishing. Our throughput multiplier allows you to boost throughput from 2-8-UP options.	● ● ● ● ● ● ● ●



- SMT Vision  
- EM Asia Innovation



- Test of Time



- Best in Test  
- SMT Vision  
- EM Asia Innovation  
- ECN Impact



- SMT China Vision  
- EM Asia Innovation  
- Best in Test

### AWARD-WINNING BOARD AND FUNCTIONAL TEST TECHNOLOGIES

Our innovations are developed on a strong foundation of winning technologies through the decades. We lead the board test industry with innovations to help you solve current and future board and functional test challenges.

x1149 Boundary Scan Analyzer  
i3070 Series 5i Inline ICT  
i3070 Series 5 (1-2 mod) ICT  
i3070 Series 5 (1-4 mod) ICT  
i3070 Series 5 ICT (High Node Count)  
i1000D Small Footprint ICT  
Mini In-Circuit Test System



## What our customers say about Keysight ICT

“Our i3070 system has been upgraded from Unix to PC platform – something we should have done much earlier to enjoy all the coverage tools like Cover-Extend, Utility Card and ASRU N throughput enhancement.”

CONTRACT ELECTRONIC MANUFACTURER SPECIALIZING IN SERVER BOARDS MANUFACTURING

“The i3070 inline ICT performs like a champ!”

US-BASED INDUSTRIAL & AUTOMOTIVE ELECTRONICS MANUFACTURER

“The i1000 inline system is just right for my company. The interface is easy to use and the press is sturdy and reliable.”

OEM OF CONSUMER PRODUCTS, NORTH ASIA PACIFIC

The i1000 uses an intelligent shorts test that not only detects the shorts, but also isolates it to the correct nodes. This is a reliable method to detect shorts on my products.”

ORIGINAL EQUIPMENT MANUFACTURER FOR COMPUTING PRODUCTS LOCATED IN NORTH ASIA PACIFIC

“I run a test development team, so turning around test programs quickly is important to me. The x1149 allows my engineers to be efficient in boundary scan test implementation.”

CONTRACT ELECTRONIC MANUFACTURER LOCATED IN SOUTH ASIA PACIFIC

“I have been working with the same HP-Agilent in-circuit test engineers for the past 18 years and even though their name badge now says Keysight, I know I can expect the same level of professionalism and integrity that makes my work easier. Keep it up guys!”

GERMANY-BASED INDUSTRIAL AUTOMATION TEST MANAGER

## Did you know?

The x1149 allows license transfer over wifi. This enables the flexibility to transfer your licensed capabilities across different regions when needed.

The x1149 supports executing digital tests written in the same format as the 3070 ICT. This allows you to leverage your current 3070 libraries!

The x1149 can be incorporated into your existing test system and controlled to execute test sequences by calling a DLL or exe.

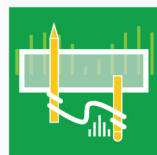
The i3070 4-module system can be equipped to handle the testing of 10-thousand-node boards, expanding the same confident tests on larger boards.

Combining the Keysight Mini In-Circuit Test System with the x1149 Boundary Scan Analyzer, you will get a desktop solution with all the in-circuit test capabilities together with easy-to-use boundary scan features.

Throughput Multiplier



Short-wire Fixturing



Silicon Nails



Cover-Extend Technology



Bead Probe Technology



Scan-path Linker



LED Test Technology





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A personalized view into the information most relevant to you.

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Keysight Technologies, Inc.

DEKRA Certified ISO 9001:2008

Quality Management System

Keysight Channel Partners

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Get the best of both worlds: Keysight's measurement expertise and product breadth, combined with channel partner convenience.

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For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: [www.keysight.com/find/contactus](http://www.keysight.com/find/contactus)

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