

i3070 Series 5i Inline In-Circuit Test Systems



Introduction

The Keysight i3070 Series 5i Inline In-Circuit Test (ICT) system is designed to bring in the latest ICT technologies into your fully automated manufacturing line. This flexible system caters to in-circuit testing for a wide range of board sizes. It can be scaled to match the number of nodes required and can be seamlessly integrated into a handler-tester design.

Three models are available to suit different manufacturing requirements:

- 2-module Standard
- 2-module Lean
- 4-module

The 2-module Standard features a staging zone for staging an incoming board to improve throughput.

The 2-module Lean is 33% smaller than the Standard system, it has a width of 80 mm or 31.5 inches, the smallest in the market today. The system can be equipped with a built-in bypass conveyor which can transport printed circuit assemblies to the adjacent ICT or other test station. This removes the need for an exterior link conveyor, saving more precise real estate.

Both the 2-module Standard and Lean have an ergonomically designed Drawer unit that enables fixtures to easily loaded onto or unloaded from the test system. This feature saves both time and effort, especially for lines running a high product mix.

The latest 4-module Inline ICT is built to test large (up to 28" x 24" or 711 mm x 609 mm) and heavy (up to 33 lb or 15 kg) boards, offering the largest test system available in the market today. The test fixture is re-usable from Inline an ICT system to an Offline ICT system.

The Series 5i Inline ICT systems share over 50% of common parts. This versatility offers the advantage of scalability and reduces the costs of parts inventory. The card cage is easily accessible for maintenance and all instruments are front-facing oriented for easy access.

Built to stringent specifications for SMEMA compatibility, this solution can be easily integrated into your existing SMT lines. The i3070 Series 5i Inline ICT comes with changeable conveyor flow directions, allowing it to be easily integrated into different SMT lines.

Keysight i3070 Series 5i Inline ICT

- Full suite of award-winning Keysight ICT solutions.
- Short-wire fixturing technology ensures transportability, repeatability and stability.
- Innovative design ensures easy maintenance and fixture change.
- Full automation capabilities reduce labor costs in today's competitive labor market where retention of experienced line operators is becoming a challenge.
- Single point of contact for your ICT solution, versus customized automation requiring liaison with different test and automation vendors.
- Excellent ROIC protection, as the heart of your existing i3070 system, the module cards (e.g. pin-cards and ASRU N card) can be migrated into the inline system.
- Reduced human contact to minimize contamination and ESD damages to the assemblies.

Deployment options for the i3070 Series 5i

The Series 5i can be deployed in either island mode or inline mode, depending on your automation test strategy and cycle time requirements. Figures 1 and 2 provide an illustration of how the i3070 is deployed in these two common SMT layouts.

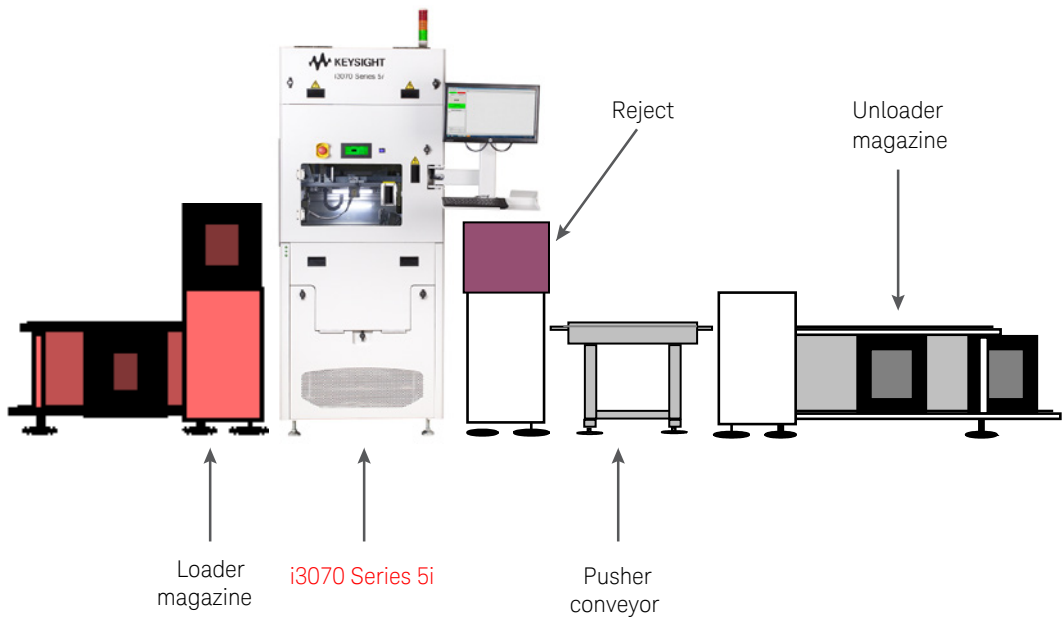


Figure 1. Island mode deployment of the i3070 Series 5i.

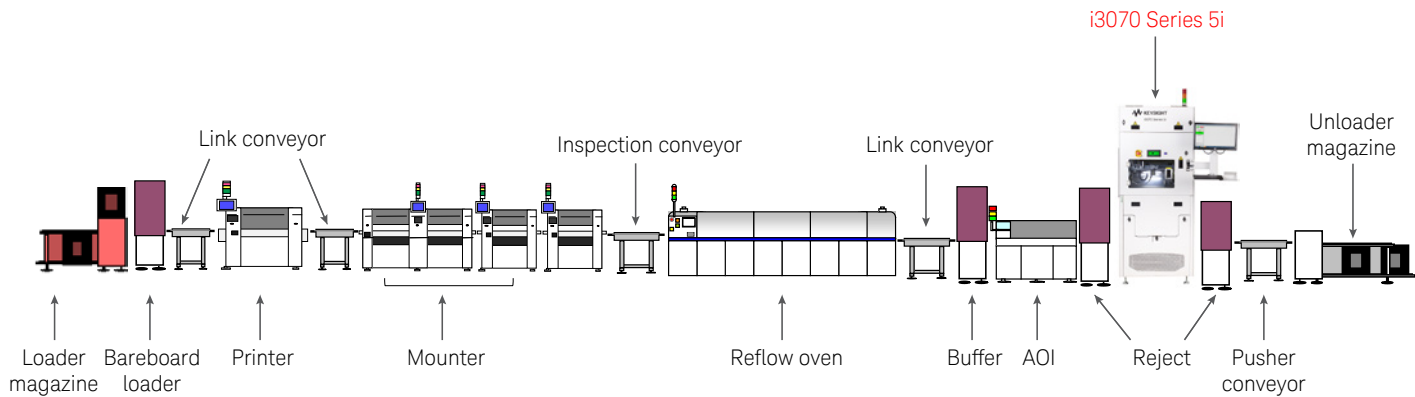


Figure 2. Inline mode deployment of the i3070 Series 5i.

Award-winning ICT Solutions

At the core of the i3070 Series 5i is Keysight's powerful new analog stimulus and response unit (ASRU N), which offers unsurpassed test throughput and coverage for today's complex PCBAs.

The i3070 Series 5i comes with the latest software, which means you will benefit from the award-winning technologies within the same system:

Cover-Extend Technology – Enables tests for PCBAs which would otherwise be inaccessible using traditional ICT probing methods.

Throughput Multiplier – Boosts test throughput with Keysight's patented Throughput Multiplier, which lets you test multiple boards simultaneously. This eliminates redundant test generation and debug, saving you time and money.

Autodebug – Slashes debug time from three days to four hours or less!

AutoOptimizer – Optimizes test times for repeated tests with a click of a button, reducing the test times by 10 to 50 percent per test.

Keysight Utility Card – Allows easy plug-in of third-party test modules for flash programming, boundary scan and LED tests, thus enhancing ROIC of your i3070 system!



Common Platform

The i3070 Series 5i is designed based on a unified platform that is shared across the Inline 2-module and 4-module systems with emphasis on long hours of operation and ease of maintenance.

Top Press



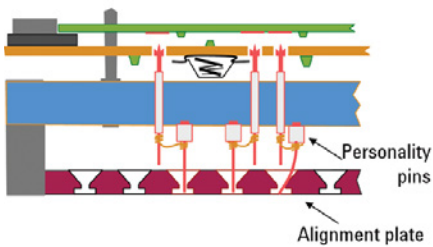
The unique scissor-shaped Top Press is fast and programmable, it delivers a uniform press-down force, ensuring even contact between test pads and probes. Being dual-stage ready, this design eliminates expensive pneumatic press-down fixture, reducing fixture costs.

Card Cage



The card cage shares the same form factor across the entire i3070 platform, which allows for module cards to be reusable in different i3070 systems; optimizing cost efficiency in terms of investment and inventory management.

Short-wire fixturing technology



Besides enhancing ease of use and maintenance, the i3070 Series 5i retains the popular and proprietary Keysight short-wire fixturing technology used in our stalwart Keysight i3070 systems. Short-wire fixturing eliminates problems commonly found with long wire fixture, such as noise and deterioration of test stability.

This translates into transportable, repeatable and stable tests on your i3070 Series 5i, even if you need to deploy tests halfway across the globe, or at different manufacturing sites.

Furthermore, an array of tools like intelligent fixture identification, board orientation detection and test plan revision controls are available to help you develop enhanced automation solutions.

Specifications	Units	E9988E	E9988EL	E9986E
		2-module Standard	2-module Lean	4-module
Dimensions (excluding beacon and LCD panel)	mm	1206 (L) x 900 (W) x 1860 (H)	800 (L) x 1400 (W) x 1900 (H)	1800 (L) x 1350 (W) x 1930 (H)
	inches	47.5 (L) x 35.4 (W) x 73.2 (H)	31.5 (L) x 55.1 (W) x 74.8 (H)	70.8 (L) x 53.1 (W) x 76.0 (H)
Number of test nodes	-	2,592 maximum		5,184 maximum
PCB size	mm	Min: 50 (L) x 60 (W)	Min: 50 (L) x 60 (W)	Min: 50 (L) x 60 (W)
		Max: 350 (L) x 350 (W)	Max: 410 (L) x 380 (W) ¹	Max: 711 (L) x 609 (W)
	inches	Min: 2 (L) x 2.4 (W)	Min: 2 (L) x 2.4 (W)	Min: 2 (L) x 2.4 (W)
		Max: 13.8 (L) x 13.8 (W)	Max: 16.1 (L) x 15.0 (W) ¹	Max: 28 (L) x 24 (W)
PCB thickness	mm	Min: 0.6, max: 4		Min: 0.8, Max: 8
	inches	Min: 0.02, max: 0.16		Min: 0.03, Max: 0.31
Maximum supportable PCB weight	kg	3		15
	lb	6.6		33
PCB edge support	mm	2, 3		3, 5, 10
	inches	0.079, 0.12		0.12, 0.2, 0.39
Component clearance	mm	Top: 90, bottom: 30		
	inches	Top: 3.5, bottom: 1.2		
Transport method	-	Belt transfer		
Transport direction	-	Left to right or right to left	Left to right or right to left	
		(factory configured)	(User-configurable direction)	
Transport speed	mm/sec	Min: 300, max: 650		
	in/sec	Min: 11.8, max: 25.6		
Transport height	mm	Min: 900, max: 1000 ²		Min: 925, max: 1000
	inches	Min: 35.4, max: 39.4 ²		Min: 36.4, max: 39.4
Bottom fixture height	mm	Min: 75, max: 105		
	inches	Min: 2.9, max: 4.1		
PCB exchange time	sec	5 to 8		8 to 12
Press force	kN	10		20
	lbf	2,248		4,496
Air pressure	kPa	500 to 700		
	psi	72.5 to 101.5		
Power	-	3-phase, DELTA; supports 200 – 400 VAC		
		3-phase, WYE; supports 208 – 220 VAC		
		3-phase, WYE with neutral; supports 220/380 – 240/415 VAC (Line-to-neutral/Line-to-line)		

1. Maximum supported board size without secondary conveyor installed. If secondary conveyor is used, the maximum supportable board size is 350 mm (L) x 350 mm (W) or 13.8 in (L) x 13.8 in (W)
2. Transport height and bottom fixture height are related. If transport height is at a minimum of 900 mm or 35.4 in, then maximum fixture height is limited to 90 mm or 3.5 in. If bottom fixture height is at a maximum of 105 mm or 4.1 in, then the minimum transport height is limited to 915 mm or 36 in.

Related Keysight literature and online references

Publication title	Pub number
Keysight Medalist i3070 Series 5 In-Circuit Test System – Data Sheet	5990-4344EN
Keysight In-Circuit Test Suite – Portfolio Brochure	5992-0423EN
Keysight Utility Card for In-Circuit Test – Data Sheet	5990-4411EN
Keysight Medalist i3070 LED Test – Technical Overview	5990-8680EN
Medalist i3070 In Circuit Test – Utilizing the most comprehensive Limited Access Solution on In Circuit Test – A Case Study	5990-3741EN
Keysight Medalist VTEP v2.0 Powered! With Cover-Extend Technology – Flyer	5989-8429EN
Overcoming Limited Access with Cover-Extend Technology at In-Circuit Test – Case Study	5990-4218EN
IEEE 1149.6 Standard Boundary Scan Testing on Keysight Medalist i3070 In Circuit Systems – White Paper	5990-3232EN

Related literature can be located on Keysight's i3070 In-Circuit Test Solutions web site at: www.keysight.com/find/i3070

Learn more at: www.keysight.com

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

