



**RAPID line** is the Seica solution flying probes for **PCBs, Ceramics** and **Substrate Technologies**, featuring a renovated and sleek look thanks to the premium materials of the chassis, and innovative electrical worth discovering performances, undoubtedly the most complete flying probing test platform on the market.

Printed circuit boards are becoming increasingly complex, featuring dozens of increasingly smaller layers and pads, and as products become smaller and smaller, designers have begun to integrate both passive and active components, such as microcontrollers, voltage regulators or even power devices like MOSFETs directly into the PCB.



The result is, rather than being a passive support for the electronics, the PCB has become an integral part of the circuitry of the finished product. This technological shift presents new challenges to PCB manufacturers across their entire process, including test; the electrical test strategy must now be extended to cover the verification of the **embedded components** and have the means to differentiate

the types of stimuli and measurements required to test the entire PCB without damaging these components.

All the **RAPID** testers feature the **Industrial Monitoring solution “5.0 ready”** by Seica, to monitor current absorption, supply voltage, temperature, light indicators and other parameters useful to indicate the correct operation, to ensure predictive maintenance and make the systems compatible with the new standards of the fourth industrial revolution ongoing nowadays.

## INDUSTRY 5.0

Information, and the technology needed to collect and analyze data is key to the successful digitalization of the manufacturing process, which is at the heart of the **Industry 5.0** concept.

## FLEXIBLE ARCHITECTURES FOR DIFFERENT MARKETS



To better meet the requirements of different operational and manufacturing process flows, the **RAPID Line** includes two mechanical architectures.

The **horizontal architecture** presents systems oriented to the in-line configuration for a completely operator-free test process, whether it be high-volume, low mix or in today's market, in-line automation can also mean, or low-volume, high mix.

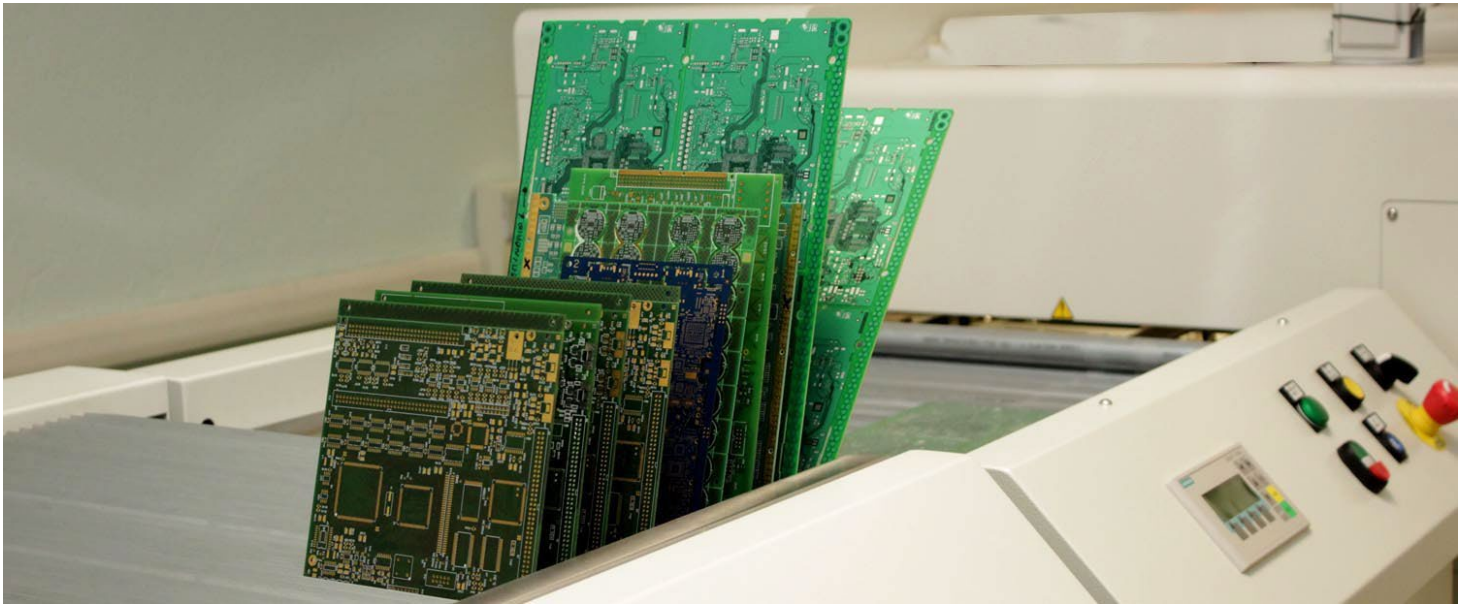
The **vertical architecture** presents a reduced footprint, optimizing the use of space, and has a highly ergonomic configuration in terms of operator access and ease of use.

## VERSATILITY AND INNOVATION

The **RAPID line** of Flying Probe test systems offers unparalleled versatility **eliminating the need to manufacture a dedicated fixture for every type of board**. This considerably reduces the time and costs needed for test setup.

These solutions are perfectly suited for testing prototypes and pre-, as well as the low-volume, high mix production lots which are typical in many of today's manufacturing scenarios.

Design modifications or variations can be implemented immediately, and since there is no constraint for a specific PCB layout, the system can test on any geometry of today's substrates and have the capability to adapt to future requirements. This maintains the value of the capital investment over time.



## TEST CHARACTERISTICS

The **RAPID line** of flying probe systems is based on the VIVA Integrated Platform (VIP), Seica's common-core hardware and software platform which includes a complete set of high performance automated tools and instruments to develop and execute test programs.

## DIGITAL SIGNAL PROCESSOR

The integrated DSP-based instrumentation takes advantage of the high definition and resolution of the digital world to execute precision testing of even the lowest value parameters. This ensures repeatable, full-range measurements even in the most critical test situations and pushing fault coverage to maximum levels.

## FIBER OPTIC BUS

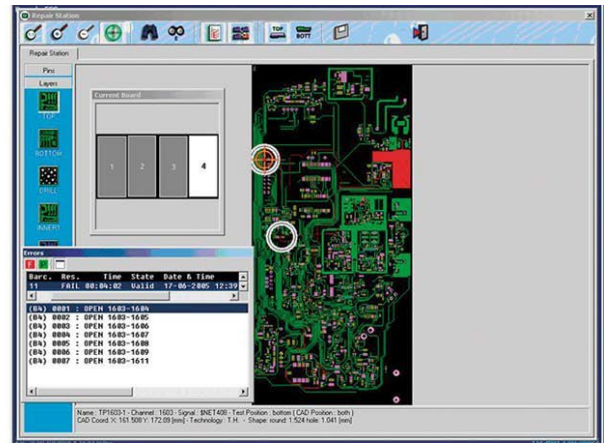
The proprietary, optical bus included in VIP ensure noise-free communication between real time devices and the system PC.

## DRIVER / CONTROLLERS

The VIP platform includes proprietary motion driver/controllers that are specifically designed for flying probe test applications, which means optimized test time, and no electrical interference in test measurements caused by general-purpose motion electronics.

## VIVA SOFTWARE

The innovative VIVA software organizes test program development into a simple 3-step, PrepareVerify-Test process, which guides the user through a series of automated operations in an intuitive, self-explanatory environment. This drastically reduces programming time and practically eliminates the possibility for error and omissions, consequently ensuring the quality of the final test program.



## ULTRA FAST AND HIGH PRECISION

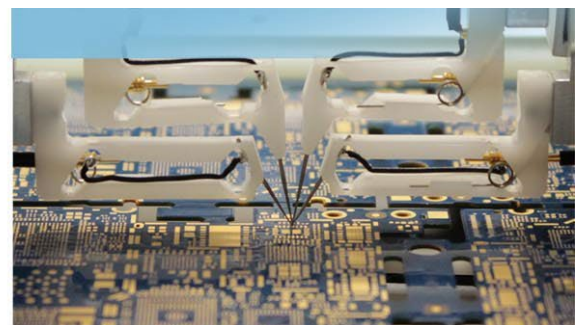
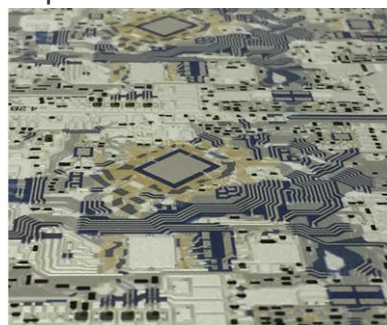
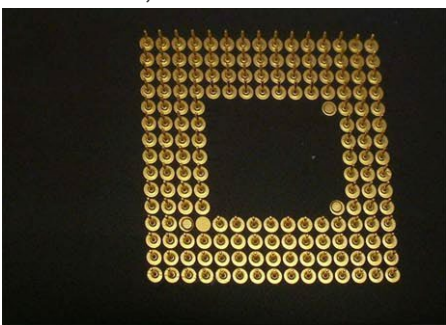
The new capacitive measurement unit, integrated directly on the mobile probes and based on DSP technology, enables the RAPID Line testers to perform high-precision capacitive measurements, further minimizing the test time.

## GUARANTEED MECHANICAL RELIABILITY

With many years of experience as a leader in Flying Probe test technology, Seica has the know-how and capability to equip the Rapid line with a reliable, accurate and integrated mechanical system.

The X-Y axes utilize the latest generation technology linear guides and ball screws, controlled by brushless motors, and are arranged in a geometry designed to minimize the overall dimensions while optimizing the motion and positioning accuracy. The Z axes are driven by linear motors and are designed for maximum accuracy and controlled dynamics of the probes.

Motion control is achieved with new generation Seica digital drivers, connected via optical fiber digital channels, for electrical noise-free operation.



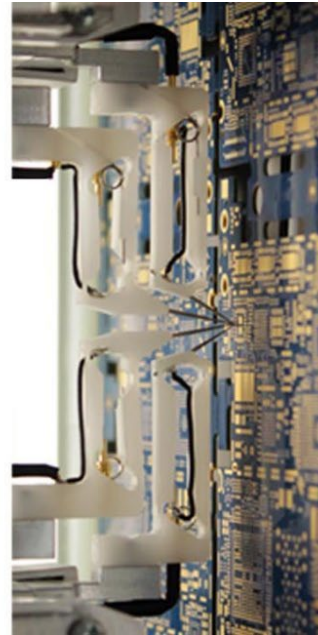
## FLYING PROBE TEST PLATFORM FOR PCBs

**RAPID** is SEICA's line of Flying Probe testers for printed circuit boards with the highest performance available on the market. It meets the requirements of industry segments through models with horizontal or vertical architecture, **4 or 8 independent flying probes** and a complete range of measurement techniques. Through Seica architecture flexibility all unique market segments can be easily addressed due to the advanced hardware and software integration.

# VERTICAL SOLUTIONS

## RAPID VX

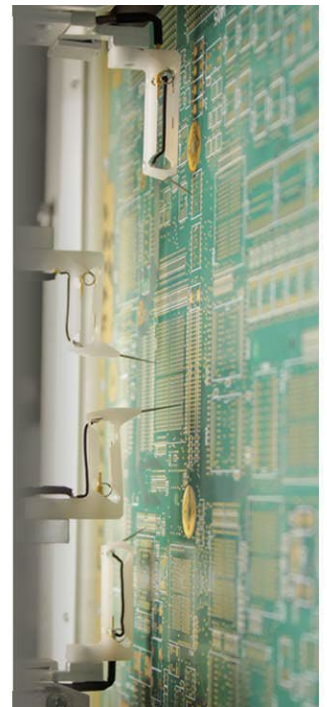
RAPID VX is the latest **vertical flying probe** test system, available in manual and automatic **version**, that can test printed circuit boards (PCB) without having to build any kind of fixture or mechanical adapter. The system uses **8 completely** independent mobile test probes to carry out tests on both sides of the UUT simultaneously (4 probes on each side). It is particularly intended for testing prototypes, samples, medium-high production, providing maximum flexibility of use to reduce the time and costs of PCB test. Thanks to the **automation** the RAPID VX can be integrated in a production flow to optimize and reduce the test time and the test cost. Moreover, in the automatic version there is the **Stretch fixture system built-in**.



- Double side 8 heads (4+4)
- Manual / Automated loading
- MTBH conveyer
- 12000 hits/min
- Ultrafast capacitive test
- Stretch fixture system built-in
- Kelvin/Barrel
- ICT (embedded components)
- Automatic marker system
- Laser warpage calculation
- Medium / High production
- Soft touch probe
- Soft land
- High Frequency impedance analysis capability
- Optional: Camera with motorized focus

## RAPID V8

RAPID V8 is the vertical flying probe test system with a test rate of 9000 hits/min. recommended for low / medium production and available in automatic and manual version.



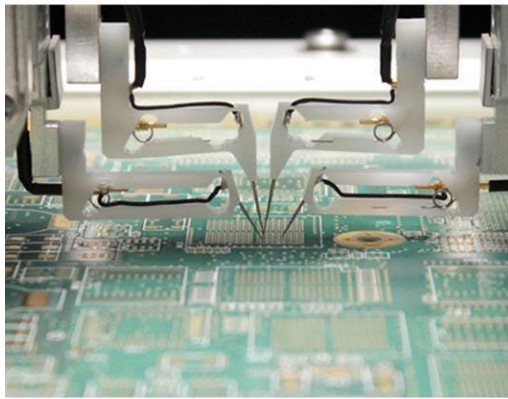
- Double side 8 heads (4+4)
- Manual / Automated loading
- MTBH conveyer
- 9000 hits/min
- Ultrafast capacitive test
- Stretch fixture system built-in
- Kelvin/Barrel
- ICT (embedded components)
- Automatic marker system
- Laser warpage calculation
- Medium / Low
- Soft touch probe
- Soft land

# HORIZONTAL SOLUTIONS

## RAPID H8

The **RAPID H8** is a **horizontal flying probe** test system designed specifically for testing any type of printed circuit board from simple single sided circuits, to complex multi layers, inner-layers and ceramics. The system is equipped with 8 completely independent mobile probes, four probes on each side.

Thanks to the third generation of linear guide technology the RAPID H8 is able to achieve very high speed with the maximum accuracy and measurement repeatability, equipped with innovative new probe styles can perform the same traditional tests such as 2-wire and Kelvin test (4wire) for testing of the latest materials used in the PCB fabrication industry.

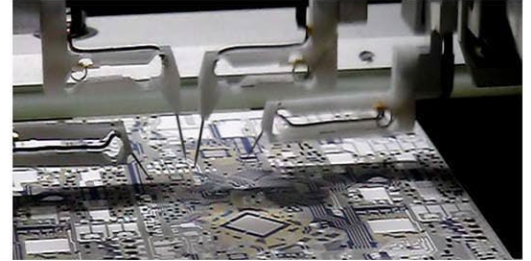


- Double side 8 heads (4+4)
- Automated
- In-line conveyor
- Pass / Fail magazine
- 9000 hits/min
- Automatic marker system
- Kelvin Barrel Test
- Laser warpage calculation
- Medium volumes
- ICT (embedded components)
- Soft touch probe
- Soft land

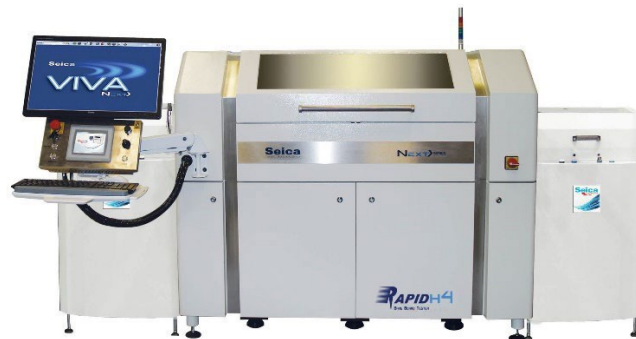
# SOLUTIONS FOR CERAMIC

## RAPID H4

The **RAPID H4** is a **horizontal** flying probe test system designed specifically for testing **ceramic printed circuits**. The system is equipped with 4 completely independent mobile probes on the Top side, available in **Manual** and **Automatic** configuration.








Thanks to the third generation of linear guide technology the RAPID H4 is able to achieve very high speed with the maximum accuracy and measurement repeatability, equipped with innovative new probe styles can perform the same traditional tests such as 2-wire and Kelvin test (4wire) for testing of the latest materials used in the PCB fabrication industry.



- Single side 4 heads
- Up to 4500 hits/min
- Automatic / Manual loading
- Automatic test generation for embedded components
- ICT test R, L, C, Junction
- Soft land to minimize pad impact
- Soft touch probe



# DIFFERENT ARCHITECTURES FOR DIVERSE SOLUTIONS

					
	<b>RAPID</b> VX M / A	<b>RAPID</b> VB M / A / VB XL	<b>RAPID</b> H8 A	<b>RAPID</b> H4 M / A	<b>RAPID</b> H4 Flex
ARCHITECTURE	Vertical	Vertical	Horizontal	Horizontal	Horizontal
MAX MOBILE RESOURCES	4+4	4+4	4+4	4 <sup>1</sup>	4 <sup>1</sup>
LOADING	Aut/Man	Manual	Aut/Man	Aut/Manul	Aut
TRACE PARAMETER TEST	●	●	●	●	●
TEST OF PASSIVE COMPONENTS	●	●	●	●	●
TEST OF ACTIVE COMPONENTS	●	●	●	●	●
KELVIN TEST	●	●	●	●	●
BARREL TEST	●	●	●	○	○
MULTIPANEL TEST	●	●	●	●	●
BARCODE READING	●	●	●	●	●
STAMPER	●	●	●	●	●
REPAIR STATION	●	●	●	●	●
PROGRAMMING STATION	●	●	●	●	●
VACUUM TABLE	○	○	●	●	●
BEST FOR	Med./High volumes	Med/Low. volumes and prototypes	Med. volumes & prototypes	Ceramics med./low volumes & prototypes	Flex med./high volumes

● = available ○ = not possible

<sup>1</sup> probes on TOP side only

## TEST TOOLS FOR SUBSTRATES

### HIGH ACCURACY TESTS

The capability of each probe to contact precisely any point of the PCB independently of the location, enables the even the most sophisticated tests to verify the circuit.

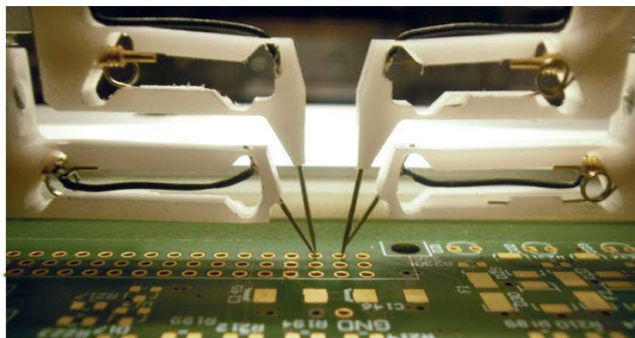
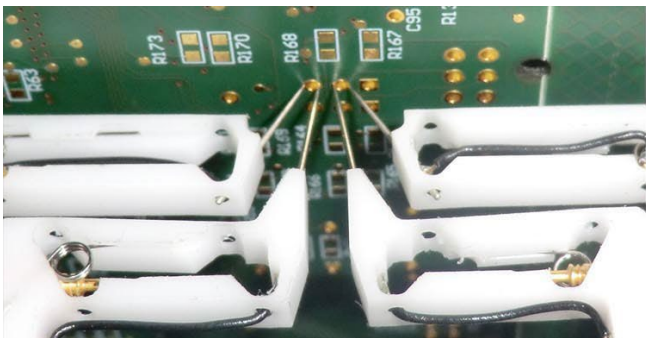
**Trace Parameter Test:** checks the continuity and isolation between the PCB tracks through a resistive test.

**Micro Short Identifier:** checks for the presence of a short circuit between tracks due to the manufacturing process.

**100 GΩ isolation:** isolation test up to 100 GΩ, applying 1000 Volts (optional).

**Trace Capacitance Test:** autolearns and tests the capacitance between tracks and ground planes of the PCB.

**Kelvin Test:** thanks to its architecture, Seica can perform Kelvin measurements using standard probes, and positioning two probes on the same pad.



**Barrel Test:** performs continuity and parametric tests on the vias of the PCB, by simultaneously positioning two probes on each side.

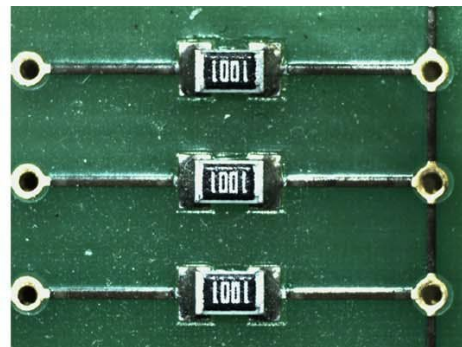
**Component Test:** The RAPID systems can generate and perform all of the parametrical and functional tests of passive and active embedded components, thanks to Seica's decades of experience and technology developed for full, loaded board tests.

**Link to Grid Test:** enables retesting of boards, or sections of boards previously tested on a bed of nails system.

**Flexible Circuits:** Seica has designed a new mechanical locking system for flex circuits and inner layers with a unique clamping device to minimize board warpage, and for testing the extremely thin flex circuits, a vacuum table, insertable in the test area, is available to simplify testing.

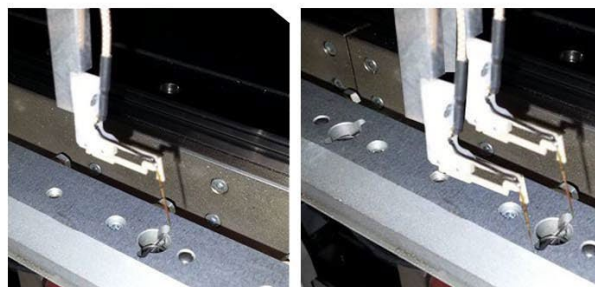
## CAMERAS AND OPTICAL INSPECTIONS

All of the RAPID line systems are equipped with high-definition, color mobile cameras, one on each side, allowing the automated optical centering of the PCB and the visual inspection of the probes during the test. In addition to simplifying the execution and debug operations of test programs, **VIVA software** includes the capability to utilize the cameras for the automatic acquisition of barcodes. Moreover, the **RAPID VX** can be equipped optionally with a motorized focus camera.



## PROBE

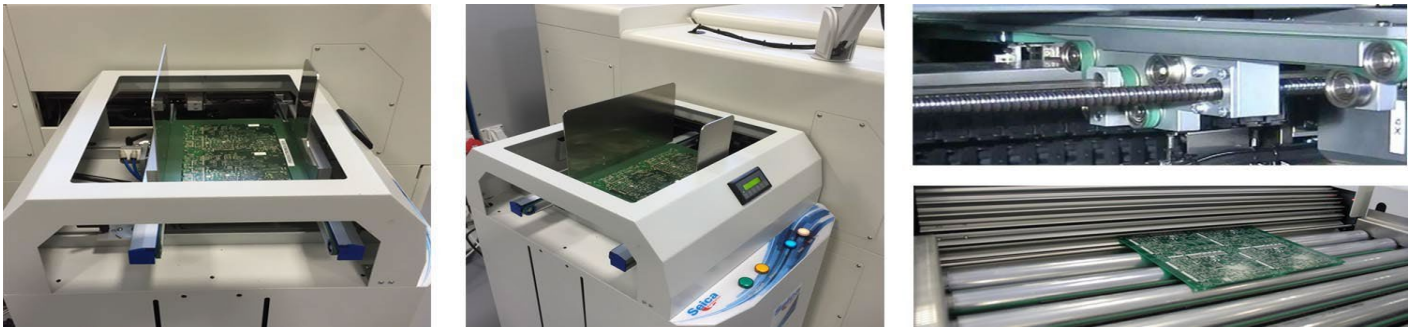
The RAPID test systems are equipped with test probes designed specifically to enable the fast, accurate testing of all types of board layouts: even the most critical layouts and the smallest-sized pads can be probed, thanks to the geometry, accuracy and repeatability intrinsic to Seica systems. The innovative design of the latest probe pins guarantees an extended life with no maintenance (over 8 million hits). Particular attention has been dedicated to minimize the electric noise which can affect measurements, so it is possible to verify even very small value parameters on tracks in a constant and repeatable manner. The new generation of Soft Touch Probes allows the testing of the PCB almost leaving witness marks on the pad surface.



## AUTOMATIC LOADER

The RAPID Line features the automation of both the horizontal and vertical testers. This is an absolute innovation in the market of flying probers for PCBs. The horizontal system may be combined with Seica Automation stackers and destackers, while a simple menu is used to select the test sequence so that the system, upon loading the selected test program, automatically adjusts the clamping rails width. At the end of the test, the PCB is unloaded and, using the **pass-through capability**, can be stored/routed according to the test result (pass/fail).

The vertical system may be combined with a single or **multi-rack loader capable** of holding up to 50 PCBs at a time; these may all be the same part number or all different part numbers.



The system automatically selects the correct test program and adjusts the clamping rails, and the PCBs will be automatically divided according to the test result.

Both systems provide the opportunity to install a labeling module to apply a label with barcode on the failed boards.

## STATISTICAL MONITORING TOOLS

The statistical monitoring tools are essential for the quality analysis and defect reports.

The RAPID systems provide the user with the different functions needed to collect data on the batch defects through self-created reports capable of providing statistical information both in graphic and text format.

## MULTIPANEL AND PARALLEL TEST

The test program can easily address multi-panel formats, providing numerous options to manage any layout, in an easy-to-use visual environment. The tests defined for a single printed circuit are multiplied and applied to the entire panel with a simple click on the screen, and the test report provides the result of each single figure. The possibility of executing the test of two PCBs simultaneously on the 8 probe systems allows the user to maximize his investment and significantly increase test throughput.

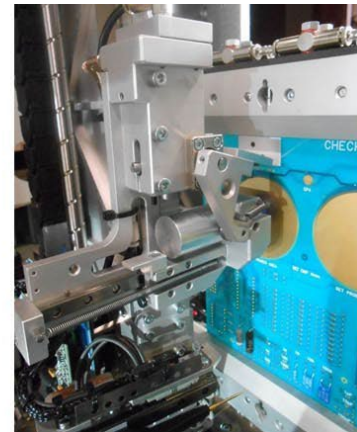
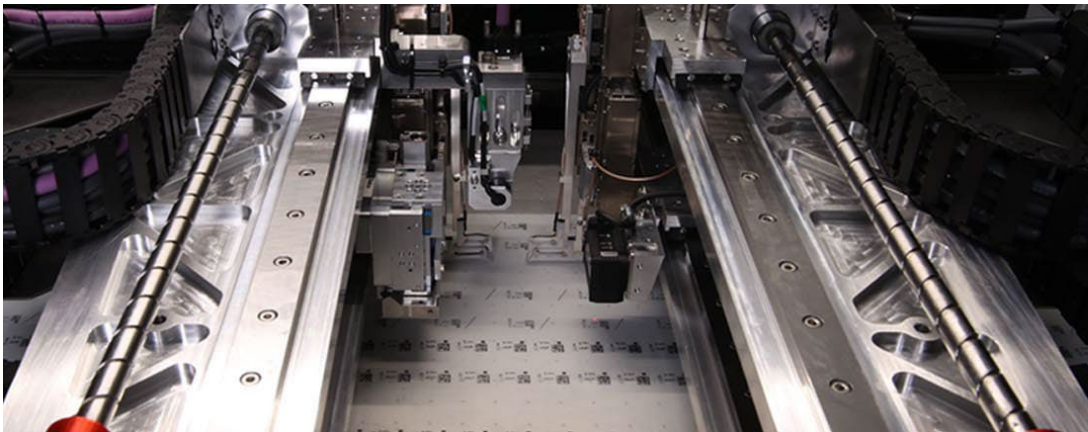
## REPAIR AND PROGRAMMING STATIONS

The VIVA software includes a graphical repair environment, which enables the user to locate and view the parts of the PCB which have failed during the test, facilitating repair operations. This operation can be done directly on the test system however it is also possible to send the test information to a remote PC for the repair activity offline. The Programming Station option allows test program development to be done offline, therefore optimizing system availability for testing PCBs.



## BODY MARKER

In the manufacturing environments there is an increasing request to “mark” the boards with a “pass” annotation after electric test. To meet this requirement, Seica has introduced an automatic marking device. The marker uses either a stamp or a motorized pin mechanism to mark the PCB in a location which has been defined using a dedicated guided procedure integrated in the **VIVA** software.



Thanks to the global extension of Seica and its subsidiaries, Seica can ensure local service support wherever the customer needs it, in addition to 24-hour telephone assistance.



**Seica SPA**  
**via Kennedy**  
**24**  
**10019 Strambino - TO - ITALIA**  
**Tel: +39 0125 6368.11**  
**Fax: +39 0125 6368.99**  
**E - mail: [sales@seica.com](mailto:sales@seica.com)**

**Proxima**  
**E - mail: [info@proximasrl.eu](mailto:info@proximasrl.eu)**

**Seica USA**  
**E - mail: [DavidSigillo@seicausa.com](mailto:DavidSigillo@seicausa.com)**

**Seica FRANCE**  
**E - mail: [dupoux@seica.fr](mailto:dupoux@seica.fr)**

**Seica DEUTSCHLAND**  
**E - mail: [sales@seica-de.com](mailto:sales@seica-de.com)**

**Seica ELECTRONICS**  
**(Suzhou)**  
**E - mail: [seicachina@seica.com](mailto:seicachina@seica.com)**

**Seica ISRAEL**  
**E - mail: [seicaisraeltd@seica.com](mailto:seicaisraeltd@seica.com)**