



MILITARY AEROSPACE TEST SOLUTIONS



Seica

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SEICA dedicates particular attention to the defense sector and, to better meet the typical needs of this market, has structured a specific division named **Military Aerospace Solutions, MAS.**

High quality standards, reliability and long-term support are the specific and critical requirements of the Military and Aerospace industry against which Seica has engineered and manufactured innovative and technologically advanced solutions.

Founded in 1986, Seica continues to develop new technologies, integrating them into VIP™ test platform and providing multiple, extremely flexible solutions for functional and in-circuit tests, optical inspection and laser selective soldering of electronic boards.

SERVICES FOR OUR CUSTOMERS

■ Test Program Sets (TPS)

SEICA started out as a “testing house” developing board-level functional test programs (detection of the faulty components) for analog, digital and hybrid boards. The first applications were developed on testers manufactured by Computer Automation (Marathon and Ironman), many of which were related to the major European avionics projects. Seica expanded this experience, developing dozens of module-level Test Program Sets related to international avionics programs, on both UNIX and Windows language platform (C-ATLAS 716/89...)

■ Design and development

A very experienced **Design Team** supports the design and development of dedicated modules and systems, on the basis of customer specifications. This is the case of “Special to Type Test Equipment” (STTE) or for legacy replacement modules manufactured to prolong the life of an existing project, suffering from the obsolescence of some parts. It adds more than 3 decades of experience in compiling, editing and checking technical documentation of different types, such as ETS, TRD, TAR and TRA.

■ Long-term project support

Various support services are available to the customers who have the necessity to extend the life of their projects managing:

- the obsolescence of electronic components;
- the production line dismantling;
- the recovery of lost know-how by reverse engineering operations;
- the rebuilding of missing documentation;
- the capability to reproduce old electronic boards starting from the few elements available such as I/O data and a working board.



ENGINEERING
AND PRODUCT
LIFE EXTENSION
SERVICES

The electronic equipment used for projects in the area of Defense, Transportation, Energy and Telecommunications often have a life cycle which greatly exceeds the availability of the maintenance services provided by the original manufacturer.

WHAT TO DO WHEN THE COMPONENTS ARE NO LONGER AVAILABLE, INFORMATION AND SCHEMATICS ARE MISSING, THE TEST BENCH IS NO LONGER OPERATING AND THE REPAIR APPEARS TO BE COMPLEX?

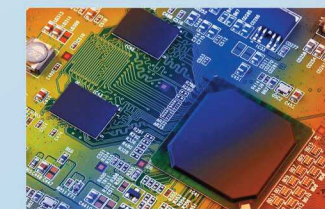
SEICA is able to provide a set of services aimed at **prolonging the life cycle of electronic equipment**:

- **test, fault diagnosis and repair** of modules and analog, digital, hybrid and power boards;
- **recovery, legacy replacement and updating of existing test**;
- **complete maintenance and repair services** of test equipment and test procedures;
- **reverse Engineering** of the product to be repaired,;
- **Redesign and manufacture** of hardware and software systems;
- **Data recovery** from obsolete peripherals;
- **Supply of new spare parts** stocks.

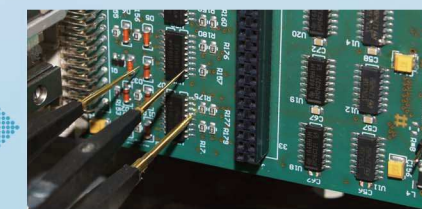
Among all the activities mentioned, the one requiring the highest effort is **the recovery or rebuilding of missing information**.

Seica has dedicated significant resources to find answers to the **Reverse Engineering of electronic boards** problems and is capable of providing well-tested, fast and technically reliable solutions, successfully applied by an increasing number of customers, particularly in the defense sector.

SEICA CAN PROVIDE A COMPLETE RANGE OF SERVICES, RANGING FROM THE MANUFACTURING OF A TRUE REPLICATE OF THE BOARD, RE-ENGINEERING USING FPGA TECHNOLOGIES, TO THE MANUFACTURING OF A COMPLETELY NEW BOARD, MICRO-PROGRAMMED TO EMULATE ALL OF THE FUNCTIONS OF THE ORIGINAL PRODUCT.



From a sample board



Exploration of the PCB



All learned data are saved in VIVA

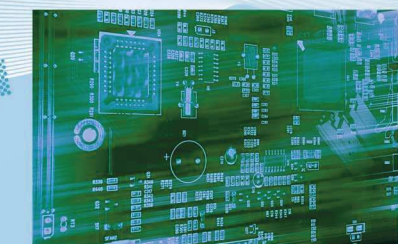
Data extracted can be used for...



Test programs



Netlist and schematics



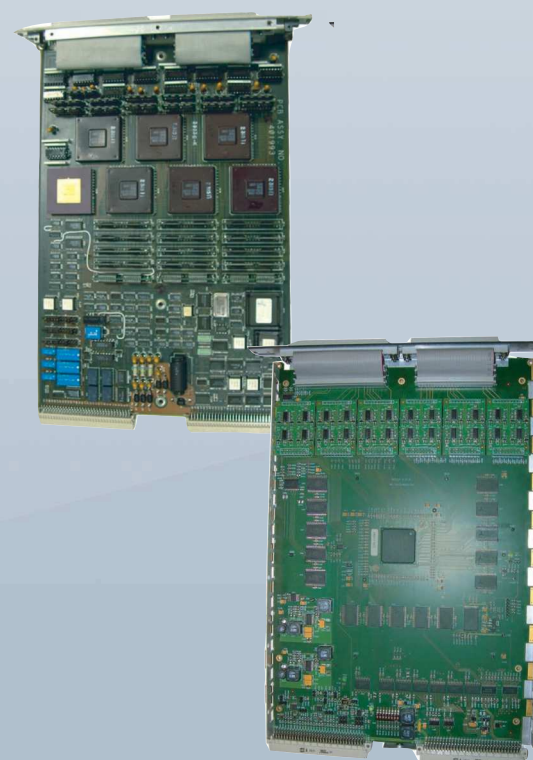
PCB design

TEST & REVERSE ENGINEERING

SEICA is uniquely positioned to offer comprehensive **Reverse Engineering solutions** thanks to the **Pilot line** of flying probe testers, the original and only flying probe platform truly oriented not only to production test but also to the repair and reverse engineering of electronic boards.

These systems can provide a complete set of software tools developed specifically for this process, and the hardware resources (mobile electrical probes, cameras, etc.) needed to acquire and verify the board data. The results of the process enable the complete and accurate rebuild of the netlist of the board.

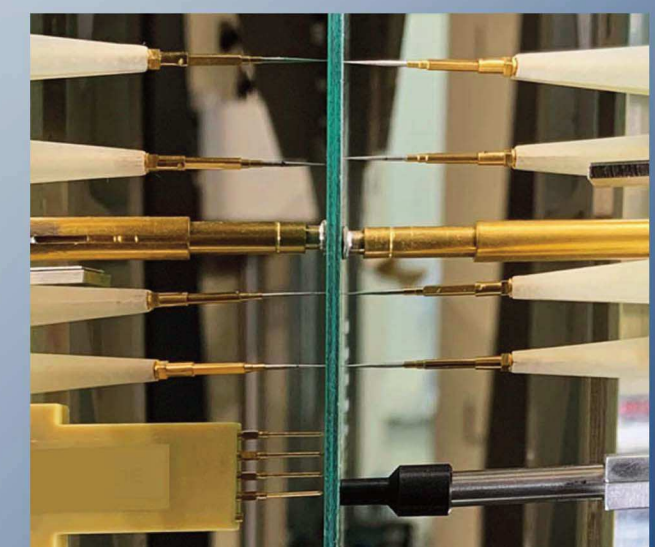
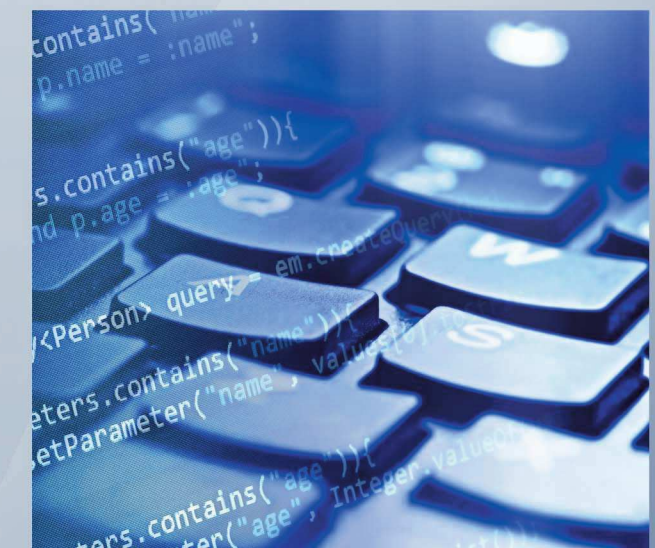
The components can then be identified and associated to the database to create a complete electrical dossier which can be directly issued or exported through the standard EDIF. If the board contains CPLD, FPGA or ASIC components whose data are not available, the solution includes a set of proprietary procedures called “**electronic circuit opener**” (**ECO**) which enable, with the support of HDL templates, the simulation and physical verification, and the extraction and validation of this information in order to create a complete and reliable database in order to start re-engineering.

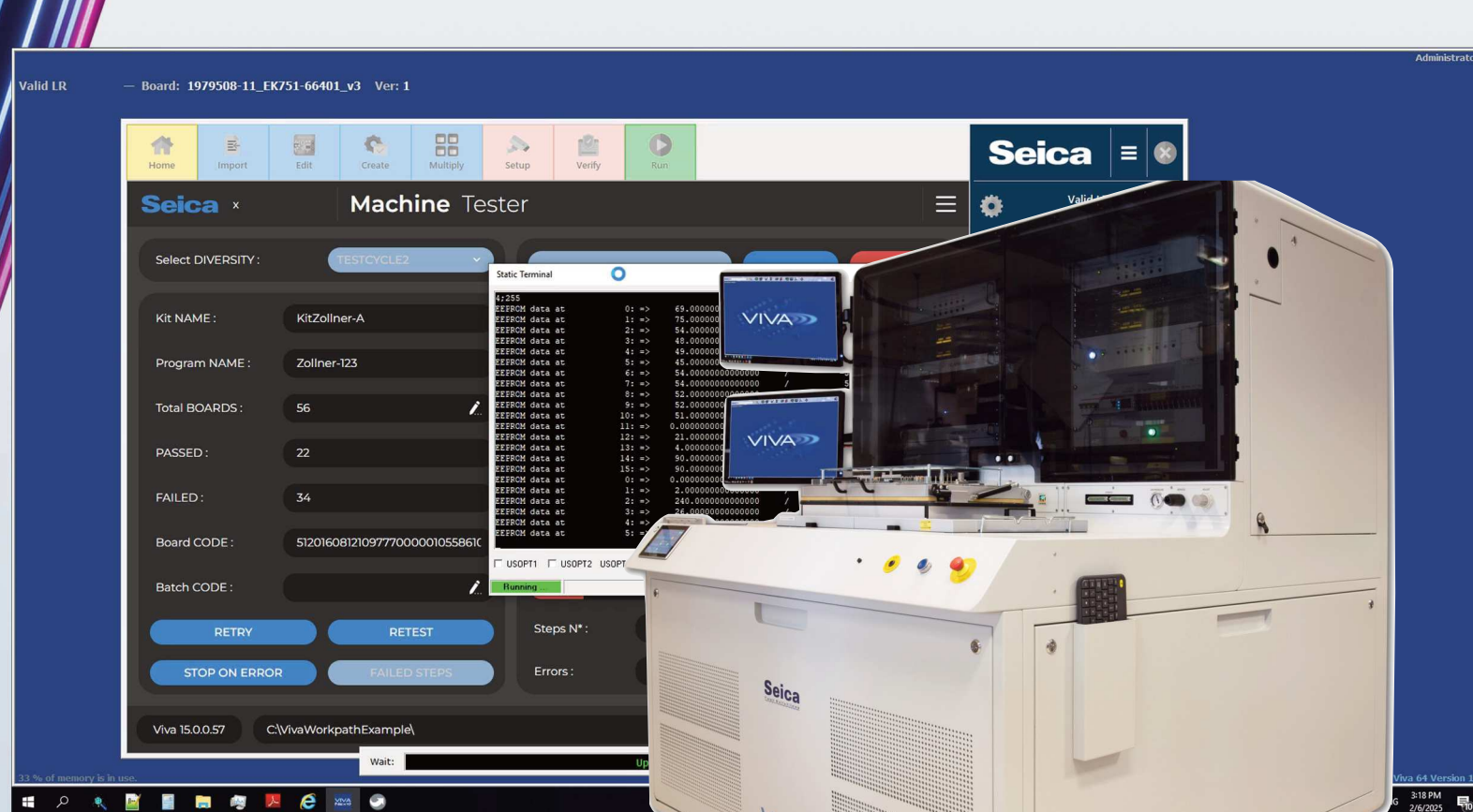


The collected data can be used to define strategy to **prolong the product life cycle**. In the simplest cases, this could be the exact replication of the PCB and rebuild of the board using the original components.

Other situations may require a different strategy, such as **designing a new layout and possible FPGA components**, and in complex cases, the strategy could be the design of a substitute “black box”, “plug-in” compatible solution.

This last solution, based on the development of firmware technologies, allows the **replication of the functions of the original product**, the recovery or even the improvement of its performances and maintainability, and its extension for use in new applications. Once the replacement product has been completed, the services provided by Seica include a thorough **validation phase**, utilizing the diagnostic and test programs of the original board and the integration of the manufactured board into the final equipment, for verification with the application programs considered as comprehensive by the customer.





LEGACY REPLACEMENT

Seica has an unparalleled experience in providing **legacy replacement solutions**, ensuring its customers **extremely flexible solutions** to guarantee long-term logistics support at competitive costs. The hardware and software of Seica's **VIP™ platform** combines the capability to support older technologies with high performance, state-of-the-art tools, which are then also available for the development of new test programs, in addition to the legacy replacement of existing applications.

The numerous **software translation tools** developed perform a streamlined and, at the same time, accurate migration, maintaining the highest integrity and, most importantly, the **fault coverage of the original test program**, and offer the possibility of **recovering existing test fixtures and software interfaces**. Thanks to these powerful tools can easily transfer his existing applications and related test fixtures to the Seica platform and continue to use these as he was accustomed to on the original tester, with the advantage of a test platform able to address present and future developments.

Seica has designed the **Valid LR (Legacy Replacement)** to provide legacy replacement capabilities for customers looking to replace test systems which are no longer supported by the original manufacturers. **Aeroflex/Marconi** and **Teradyne Spectrum 8851/52** fixtures are some examples of legacy replacement into a modern platform, which includes all of the technologically advanced performances required by new applications.



LEGACY REPLACEMENT SOLUTIONS
CURRENTLY AVAILABLE:
 Schlumberger S790
 Aeroflex IFR 4250
 Agilent i3070
 Spectrum 885x
 Columbia C2000
 Computer Automation (Marathon)
 Schlumberger S720 (Mediator)
 GR 179X
 GR 2235
 GR 227x/228x
 GR 275x
 Tecnost RTS9032
 Teradyne L2xx/L3xx
 (including LASAR post processing)

PROJECT EXPERIENCE

- Dozens of LRU/SRU TPS's for major international defense programs on multiple ATEs and Test Environments (ATLAS, C++, LASAR, LabView, tester-specific).
- In 2002 the standard Seica hardware/software platform was chosen for board level testing in the European Fighter Aircraft (EFA) program.
- Design, engineering and realization of several Special to Type Test Equipment (STTE).
- Numerous legacy redesigns for prolonging project life, including the control unit for a mobile power generator for weapons systems, a control unit for the DSP filtering of launch data for missile launchers, complete Electrical Test Set for field maintenance of missile launchers.
- Digital channel boards for military aircraft LRU test benches.



PRODUCTS LINES

SEICA is able to offer a full range of flexible, cutting edge solutions due to continuous investment in research of new technologies and the development of new products.

Flying Probe - Pilot Line - The most versatile and complete line of automatic flying probe test systems on the market today, models range from 2 to 8 test probes, accessing simultaneously one or both sides of the board, which can be positioned either horizontally or vertically.



PCB test - Rapid Line - The complete test solution for flying probe test of printed circuit boards with a fully integrated automation option.



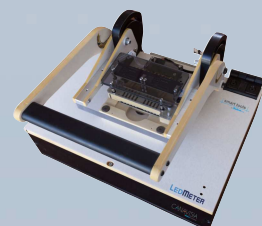
In-circuit test - Compact and Mini 200 Line - In-circuit and functional testers, it is ergonomically sophisticated and technologically competitive, offering a high level of flexibility, measurement accuracy and test speed in small spaces with a minimum footprint and low energy consumption, making it a cutting edge and sustainable product.



Functional test - Valid Line - The functional test solution capable of providing high-performance analog, digital and mixed-signal testing for second level test. This series includes comprehensive fault diagnostics, with powerful guided probe algorithms, driven by simulated or learned data.



Smart Tools - Canavisia
Universal programming and testing tools from project development labs, prototype and pre-series manufacturing to high-volume production environments of assembled electronic boards and modules.



Laser selective soldering - Firefly Line - The laser-based, selective soldering solution that has been developed to satisfy the ever growing need of modern electronics manufacturing for maximum flexibility, quality control and manufacturing traceability.



Optical Inspection CC and THT - Dragonfly Line is the Seica AOI line solutions for conformal coating and pin through hole inspection.



CONSULTING

SEICA has a Pre-sales team made up of highly qualified professionals, both from the technical and commercial point of view.

These resources are dedicated to supporting customers, identifying their needs, and helping them choose the most suitable product for their requirements.

SEICA provides standard solutions or solutions that are customized to address specific requirements, and is always open to give a practical demonstration of its technologies via demos and benchmarks.

- Test Applications
- Training and education
- Service contracts and technical support
- Mil-Aero services

SEICA - MILITARY AEROSPACE SOLUTIONS

Board Markers - Absolute Coord.
ALI-1 - Channel: 1891 - Signal: VIVA LASERTEST SIGNAL - Test Pos.: top - Test: Not testable
4 - TOP 201 - (F20-V-011-222-1) Level: 1 - Tool: GMD - Channel: 0-24 - Level: 1

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ENGINEERING AND PRODUCT LIFE EXTENTION SERVICE

TEST & REVERSE ENGINEERING

LEGACY REPLACEMENT

PROJECT EXPERIENCE

PRODUCTS LINES

CONSULTING



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