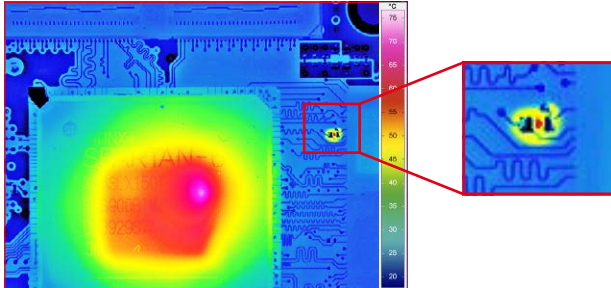




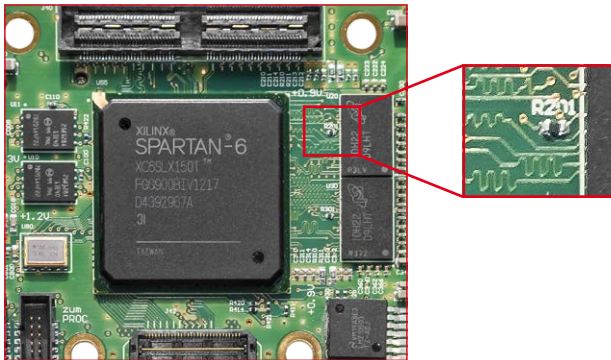
Automated Testing Solution E-LIT

Electronic / Semiconductor Testing Using Active Lock-in Thermography



E-LIT – Automated testing solution system allows non-contact failure inspection of semiconductor material during the manufacturing process. Inhomogeneous temperature distribution, local power loss can be measured with Lock-in Thermography. This is achieved by using the shortest measurement times combined with a high-performance thermographic camera and a specialised lock-in procedure.

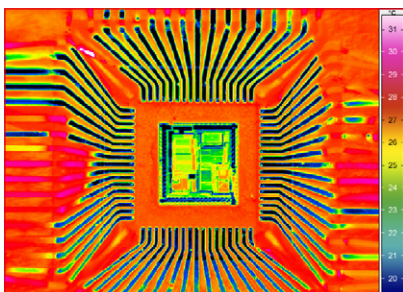
The power supply for this process is clocked with a synchronisation module and failures that produce mK or even μ K differences are reliably detected.



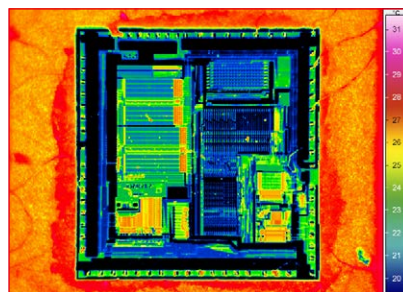
Smallest defects like point and line shunts, oxide failures, transistor and diode failures on a PCB surface and in IC's can be detected and displayed in x and y positions. Additionally, it is possible to analyse stacked-die packages or multi-chip modules in z-direction with merely changing the lock-in frequency.

The modular test bench offers the following benefits:

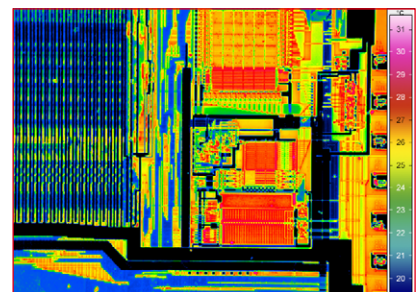
- Online lock-in measurement with the highest sensitivity
- Complete and detailed microscopy analysis
- Geometrical resolution up to $1.3 \mu\text{m}$ per pixel with microscope lenses
- Thermal resolution in the microkelvin range
- Multi-layer analysis
- Automatic scanning of larger samples due to precision mechanics



100 mm telephoto lens with 500 mm close-up;
pixel resolution $75 \mu\text{m}$



1x microscopic lens; pixel resolution $15 \mu\text{m}$



3x microscopic lens; pixel resolution $5 \mu\text{m}$

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Technical Specifications

Measuring chamber

Infrared thermographic camera	High-end camera – ImagerR® or VarioCAM® HD head
Detector (cooled)	(1,280 × 1,024) / (640 × 512) / (320 × 256) IR pixels
Detector (uncooled)	(1,024 × 768) / (640 × 480) IR pixels
Spectral range	(2 ... 5) μm or (7.5 ... 14) μm
Infrared image frequency	Up to 355 Hz @ (640 × 512) IR pixels
Available lenses	12 mm, 25 mm, 50 mm, close-ups, microscopes 1x, 3x, 8x up to 2 μm per pixel
Electrical excitation source	4 Quadrant power supply or other special power supply e.g. Keithley



Optional

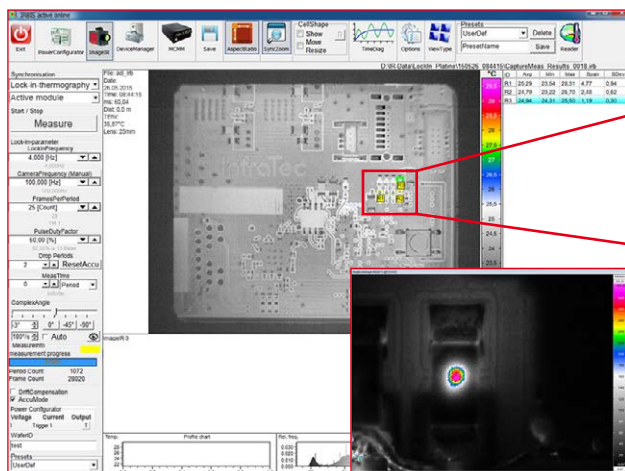
- X, Y axis sample moving table
- Z axis for camera positioning and focus adaption
- Autofocus for camera
- Contact probes for 4 point measurement

Evaluation unit

Dimensions	(553 × 589 × 600) mm (W × H × D)
PC	19" industry PC
Power supply	230 V AC / 110 V AC
Weight	74 kg (incl. PC)

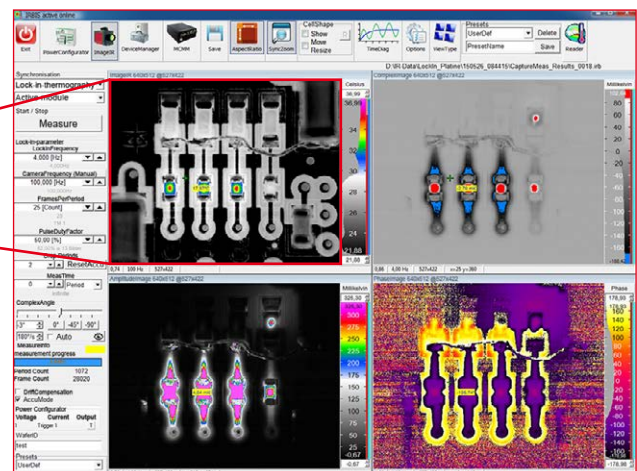
Software

- Operational software with comprehensive analysis options in laboratory conditions
- Software add-on for automatic error classification based on parameter settings
- Intuitive user interface for easy operation
- Real-time display of the object being measured in various states
- Multifaceted memory options for image data and measurement results
- Alternative 0°, 90° or customised set phase angle image for representation of complex intensity information
- Merging live and amplitude image
- Optional: IV measurement, under sampling, drift compensation, DC-mode, power loss measurement, user and protocol administration, interface preparation: e.g. Profibus, Ethernet



Software user interface: IRBIS® 3 active online-LIT

25 mm standard lens



1x microscopic lens