



## Failure analysis of ICs and components

Expert failure analysis will shorten development cycles.  
Eurofins | EAG Laboratories has the expertise to help.

As products and technologies become more complex, failure analysis plays a critical role in the product development cycle and for improving current products. Eurofins | EAG Laboratories has the engineering expertise coupled with a significant investment in advanced failure analysis tools and equipment to help you solve your most complex issues. We can provide the best analysis techniques and expertise to lead investigations for a wide range of samples, technology disciplines and industries:

- Devices and technology: ASIC, image sensors, discretes, passives, RF, advanced CMOS, III-V, 3D packages, LED, laser diodes, solar cells
- Product life cycle: design debug, foundry, package assembly, final test yield, field / customer return
- Systems level analysis: parametric test, PCBA, solder joint integrity
- Construction and competitor analysis
- Counterfeit / authenticity

- Materials analysis, cross sectioning, teardown
- Technical consultation

### Why Eurofins | EAG Laboratories?

Eurofins | EAG Laboratories provides the specialized support and services you need to accelerate time to market, fill equipment and expertise gaps, and manage risk associated with product development.

- Expertise in failure analysis of advanced product technologies
- Comprehensive services from technique specific to turnkey and root cause support
- Wide range of equipment for inspection, analysis, and fault isolation of complex investigations
- Customized services to meet your specific needs



## Failure Analysis Services

The ultimate goal in failure analysis is to arrive at an accurate determination of the cause of the failure. Eurofins | EAG Laboratories has a proven, methodical process of failure analysis that is efficient but can be customized for your needs. For all levels of effort, Eurofins | EAG Laboratories uses advanced tools and techniques coupled with expert interpretation to provide insight into the investigation and product failure.

## Package Integrity

- External optical examination
- Scanning Acoustic Microscopy (SAM)
- 3D/CT X-ray
- Real Time X-ray analysis (RTX)
- Dye Penetrant
- Thermal measurement and mapping

## Decapsulation

- Laser ablation
- Cu wire
- Advanced packaging (stacked die, multi-chip module, embedded devices, mounted on PCB)
- CSP extraction from module and re-ball
- Die extraction
- Stacked die separation
- Jet etch/chemical
- Mechanical de-lid
- Oxygen plasma

## Optical Inspection

- Bright and dark field imaging
- Nomarski Differential Interference Contrast (DIC)
- Near-IR inspections through silicon

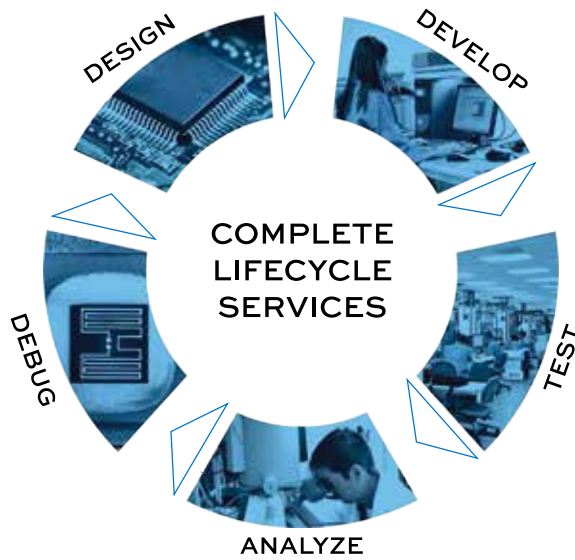


## Fault Isolation

- Backside sample preparation and analysis
- Laser Signal Injection Microscopy (XIVA, OBIRCH, Lock-in Mode, 1340nm, 1064nm)
- Infrared (IR) Thermography (pulse modulation mode, lock-in, hot spot, temperature map)
- Light Emission Microscopy (LEM) or EMMI (InGaAs, Deep Depletion CCD)
- Microprobing and picoprobing
- Time Domain Reflectometry (TDR)
- Laser Timing Probe (LTP/LVP)
- Nanoprobing
- EBAC, EBIC, Current Imaging
- FIB circuit edit and probe points
- Dopant profiling (AFP SCM)

## Physical Analysis

- Reactive Ion Etch (RIE)
- Deprocessing/de-layering (chemical and mechanical)
- Scanning Electron Microscopy (SEM, FE SEM)
- Energy Dispersive X-ray Spectroscopy (EDS) spot, dot map and line scan
- Scanning Transmission Electron Microscopy (STEM)
- Dual Beam Focused Ion Beam (DB FIB) with GDS navigation and EDS analysis
- Ion milling and polish
- Metallurgical cross-sectioning (die, package, PCB, product)
- Dye and pry (solder joint integrity)
- Warp, Topography and Deformation Measurements over Temperature
- Bond strength test (pull and shear)
- Construction and competitor analysis (process technology and node)



## Engineering Sciences

- ATE Test Development and Pilot / Production Test
- Burn-in and Reliability Qualification
- ESD and Latch-up Testing
- Debug and FIB Circuit Edit
- Failure Analysis
- Advanced Microscopy (SEM, TEM, FIB/SEM)
- PCB Design and Hardware

Eurofins | EAG Laboratories delivers comprehensive design, development, test, analysis and debug services that are differentiated by expert engineering capability and comprehensive capital equipment and processes.

