Failure analysis
- a powerful in-house capability

Introduction
DELTA operates its own in-house microelectronics failure analysis department.

We have a very large investment in specialized equipment for the task, from mechanical access techniques to X-ray and scanning electron microscope examination (SEM).

Trouble-shoot problems quickly
This analysis capability ensures that we are able to quickly get to the root cause of any problem, whether the aim is to keep a microelectronic or ASICs project on track, or to trouble-shoot problems that have developed during operational service.

Among the issues we can quickly and efficiently resolve are:
- Is a failure due to some aspect of the IC fabrication process?
- Is a failure caused by the operating conditions?
- Is a failure related to a design weakness?

These specialist services are widely used by commercial IC manufacturers and IC users, and by our own in-house IC developers.

The skills and technologies we use for these investigations also mean that we additionally have a lot of know-how to combat any threat of reverse engineering, on ICs destined for financial- or security-related applications, or where the IP used protects a large market share.

Some of the major techniques available at DELTA:
- Microsectioning
- Real time X-ray
- Hot spot analysis
- Solderability tests
- Sub-micron probing
- Chemical and plasma etching
- Scanning electron microscopy (SEM)
- Scanning acoustic microscopy (SAM)
- Energy dispersive analysis of X-ray
- Gross and fine leak hermeticity testing
- Bright/dark field, differential interference, light sectioning, and stereo microscopy
- Environmental testing (temperature, shock, humidity, corrosion, vibration ...)

DELTA also has access to other specialised equipment such as FIB material deposition, via a network of partners.

If you have a problem, then a phone call to DELTA’s failure analysis department will often provide enough information to allow us to advise on the likely techniques required to locate the cause.

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