

## Fundamentals of Mixed—Signal Testing

### Title

Fundamentals of Mixed—Signal Testing

### Presenter

Peter Lindholm  
Soft Test inc

### Date and Venue

14-18 September 2009  
iSLI, Livingston

### Cost

£1,500 per person + VAT  
(Discounts available please enquire)

Mentor Graphics Passbook = 5 Tokens  
per person

### Contact

If you have any course queries, please  
contact the CPD team on 01506  
469300 or by emailing [cpd@sli-  
institute.ac.uk](mailto:cpd@sli-<br/>institute.ac.uk)

### Background

Explains the concepts and methodologies of testing mixed signal devices using ATE equipment, beginning by introducing the instrumentation of a mixed-signal test system, with emphasis on DSP capabilities.

Time is spent explaining the maths necessary to fully understand signal sampling and waveform synthesis. Specifications for mixed-signal devices are discussed and the method of verifying each individual parameter is explained in detail.

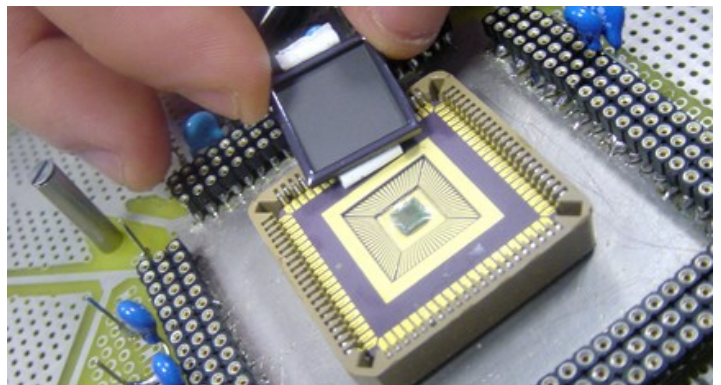
The testing of digital-to-analogue and analogue-to-digital converters is covered step by step including device conditioning, analogue filtering, grounding issues and noise effects.

Many practical aspects of test programme development and debug are also included.

### Course Aims

This course presents the latest concepts and test techniques within the area of mixed-signal semiconductors.

At the end of the week, delegates will understand



the components of a mixed-signal test system, the mathematical basis of DSP, analogue signal theory, sampling theory, typical DSP algorithms, why and when to use filtering and signal conditioning, how to avoid signal interference, and how to extract meaningful measurements from sampled data.

### Course Content

- Digital signals and test systems
- Analogue signals and test systems
- Mixed signal test systems
- Mathematics behind DSP
- Creating, taking and processing samples
- Specifications of analogue and digital devices
- Mixed signal device specifications
- A/D converter specifications
- Calculation of SINAD, SNR, THD and IM
- D to A converter static parameters
- A to D converter static parameters

### Who Should Attend

Test and Product Engineers, Engineering Managers and Sales Managers have all benefited from this course — it is the logical follow-on to Soft Test's Digital Test Technology class. In addition, Design, Verification, and DFT Engineers find these courses to be a valuable resource for bettering their understanding of the IC test process.

The course is suitable for new graduates wishing to specialise in analogue test engineering, practicing engineers and managers needing to gain an awareness of current and future issues in the field.

### Quiz

To help delegate evaluate their needs for this course a quiz can be taken at:

[http://www.soft-test.com/mixed\\_signal/need.htm](http://www.soft-test.com/mixed_signal/need.htm) (Mixed Signal)

### Presenter

The course will be presented by Peter Lindholm who has over 18 years experience in ATE, both with equipment manufacturers and as an independent test consultant.

Peter holds a BSEE from Union (NY) College, and a MBA from Boston University and has significant teaching and presentation experience.

### Fees

Fees cover tuition, course notes, lunches and light refreshments. Delegates receive a copy of the DSP lab software and the reference manual 'Fundamentals of mixed-signal testing.'

### Accommodation

Information on local hotels is available by emailing [cpd@sli-institute.ac.uk](mailto:cpd@sli-institute.ac.uk).

### Cancellations

A 10% administration fee is levied for cancellations made up to two weeks prior to the start of the course. Cancellations thereafter will be liable to the loss of the full fee. Substitutions may be made at any time up until the start of the course.

### **Mentor Graphics Customers Only:**

*Cancellations made up to two weeks prior to the start of the course will result in a 1 token per booked place charge. Cancellations thereafter will be liable for full token fees. Substitutions may be made at any time up until the start of the course.*

The Institute reserves the right to cancel an advertised course at short notice or to postpone or make such alterations to the content of a course as may be necessary. If a course is cancelled, fees will be refunded in full.