

### Soft- and Hardware for Research, Science & Engineering

# **ARM-KEIL Advanced Debugging Workshop**

Advanced Debugging in ARM Keil Embedded Development Tools We impart the expertise about Advanced Debugging to you using the ARM Keil development environment(IDE)  $\mu Vision$  and the different ULINK debug adapters. You will learn the debug capabilities of a Cortex-M and its "Coresight debug Macrocell". You can engross the newly gained knowledge directly with the various practical examples.

## For whom is this workshop appropriate?

Hardware- and Software-Developers and Test-Engineers, who want to improve their knowledge about the Debug-capabilities of the ULINK Debuggers and the MDK-ARM Development Environment

#### Requirements

- A basic understanding of the programming language C
- A basic understanding of MDK-ARM

### **Topics**

- Introduction into the ARM Coresight Debug and Trace technology
  - o ARM Core Sight debug and Trace Macrocell
- Keil Debugger and their capabilities
- Overview and Function-comparison
  - Simulation
  - ULINK-ME
  - o ULINK2
  - o ULINKpro D
  - o ULINKpro
- Debugger configuration\*
  - Debug connections and their possibilities
  - Project configuration
  - negative influences on the Debug performance
- Debugging\*\*
  - Printf
  - Advanced Breakpoints
  - Symbols Window
  - o Toolbox
  - Event Viewer
  - Logic Analyzer
  - Execution Profiling
  - Code Coverage
  - Performance Analyzer
  - Trace
- Time to discuss
- Certification Test

\* Advanced Software examples

\*\* Advanced On-Board (Hardware) examples

Languages: German or English

#### **Included Material:**

- 20% discount on a KEIL Debug Adapter of Choice
- Book
- USB-Pen with examples and documentation

Information about the course instructor:

Tobias Möri

Dipl. Techniker HF
Tel. +41 32 332 99 52
Email: moeri@redacom.ch

Web: www.redacom.ch