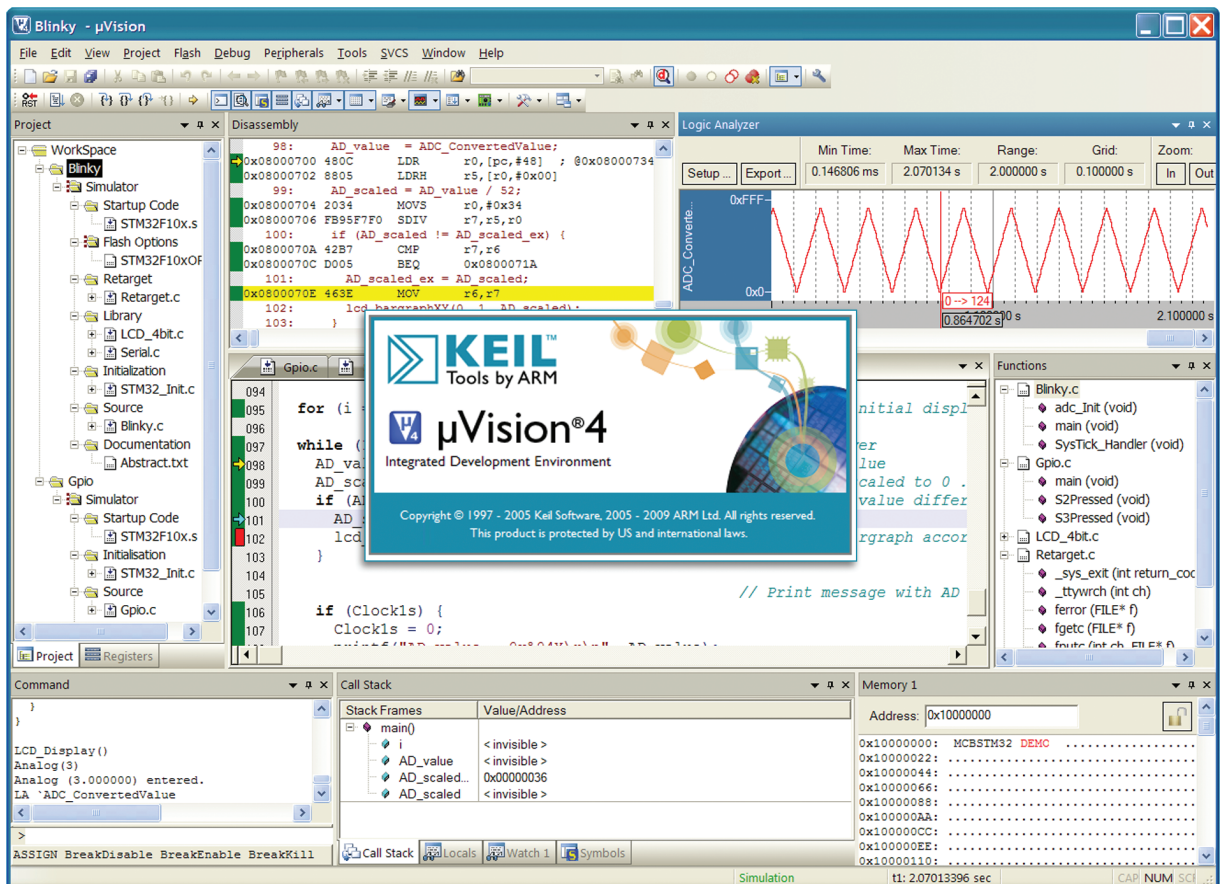


# Getting Started

## Creating Applications with $\mu$ Vision®4



For 8-bit, 16-bit, and 32-bit Microcontrollers



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## Creating Applications with $\mu$ Vision<sup>®</sup>4

The screenshot displays the KEIL  $\mu$ Vision IDE interface for a project named "Blinky". The main window shows assembly code for the "Disassembly" view, with instructions like "LDR r0, [pc, #48] ; @0x08000734" and "MOV r0, #0x34". A "Logic Analyzer" window shows a square wave signal for "ADC\_ConvertedValue" ranging from 0x0 to 0xFF. The "Functions" window lists functions such as "adc\_init (void)", "main (void)", and "SysTick\_Handler (void)". The "Call Stack" window shows the current function "main()" and its arguments. The "Memory" window shows the memory address "0x10000000" and its contents. A central watermark for KEIL Tools by ARM  $\mu$ Vision<sup>®</sup>4 is overlaid on the screen.

For 8-bit, 16-bit, and 32-bit Microcontrollers

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**NOTE**

*This manual assumes that you are familiar with Microsoft Windows and the hardware and instruction set of the ARM7, ARM9, Cortex-Mx, C166, XE166, XC2000, or 8051 microcontroller.*

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Every effort was made to ensure accuracy in this manual and to give appropriate credit to persons, companies, and trademarks referenced herein.

# Preface

This manual is an introduction to the Keil development tools designed for Cortex-Mx, ARM7, ARM9, C166, XE166, XC2000, and 8051 microcontrollers. It introduces the  $\mu$ Vision Integrated Development Environment, Simulator, and Debugger and presents a step-by-step guided tour of the numerous features and capabilities the Keil embedded development tools offer.

## Who should Read this Book

This book is useful for students, beginners, advanced and experienced developers alike.

Developers are considered experienced or advanced if they have used  $\mu$ Vision extensively in the past and knowledge exists of how the  $\mu$ Vision IDE works and interacts with the debugger, simulator, and target hardware. Preferably, these developers already have a deep understanding of microcontrollers. We encourage this group of engineers to get familiar with the enhancements introduced and to explore the latest features in  $\mu$ Vision.

Developers are considered students or beginners if they have no working experience with  $\mu$ Vision. We encourage this group of developers to start by reading the chapters related to the  $\mu$ Vision IDE and to work through the examples to get familiar with the interface and configuration options described. They should make use of the ample possibilities the simulator offers. Later on, they should continue with the chapters describing the RTOS and microcontroller architectures.

However, it is assumed that you have a basic knowledge of how to use microcontrollers and that you are familiar with a few instructions or with the instruction set of your preferred microcontroller.

The chapters of this book can be studied individually, since they do not strictly depend on each other.