Precision32™ Software Development Kit Overview

1. Introduction

The Precision32™ Software Development Kit (SDK) provides a means for easy and rapid code development for Silicon Labs 32-bit MCUs. The SDK consists of three parts: the Silicon Labs Hardware Access Layer (HAL), code examples, and the si32Library. Each of these parts is discussed in more detail in the application notes listed in “2. Relevant Documentation”.

The SDK is installed with the Precision32 software package available at www.silabs.com/32bit-software. The SDK sits in the **si32-x.y** folder in the installation directory, were **x** is the major SDK version and **y** is the minor SDK version. This enables newer versions of the SDK to reside in parallel with older versions and not overwrite any previously working project source. The SDK is part of the Precision32 Development Suite.

Figure 1 shows the SDK system.

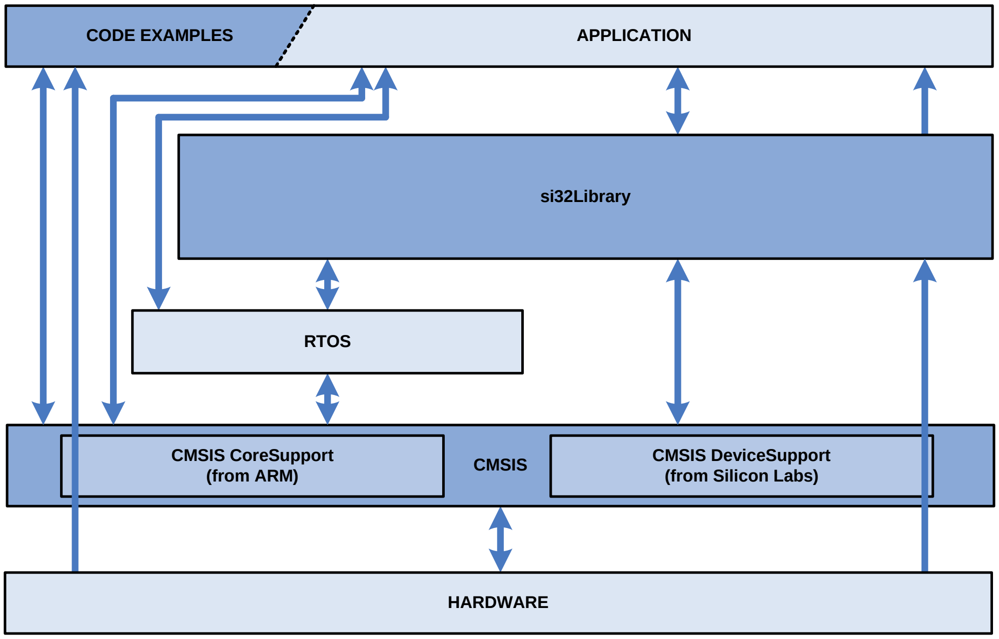


Figure 1. Software Development Kit (SDK) System

2. Relevant Documentation

Precision32 application notes are listed on the following website: www.silabs.com/32bit-mcu.

- AN664: Precision32™ CMSIS and HAL User’s Guide
- AN668: Precision32™ Software Development Kit Code Examples Overview
- AN670: Getting Started with the Silicon Labs Precision32™ AppBuilder
- AN672: Precision32™ si32Library Overview
- AN675: Precision32™ Development Suite Overview

3. Hardware Access Layer

CMSIS is the Cortex Microcontroller Software Interface Standard, and the Hardware Access Layer (HAL) is a defined part of this standard.

The HAL provides an access layer for the SiM3xxxx device registers. The functions and macros are non-blocking and simple; they cannot return error codes, so they are designed to never fail. The HAL is designed to replace the individual bit field accesses of the module with a function name that describes the action the bit is controlling.

Note: HAL functions and macros are not designed to be thread-safe. These routines do not disable interrupts during non-monotonic register modifications.

The HAL sits one layer above the hardware and is the only code that accesses the registers directly. More complex firmware systems like a Real Time Operating System (RTOS) or code example call the HAL and CMSIS routines.

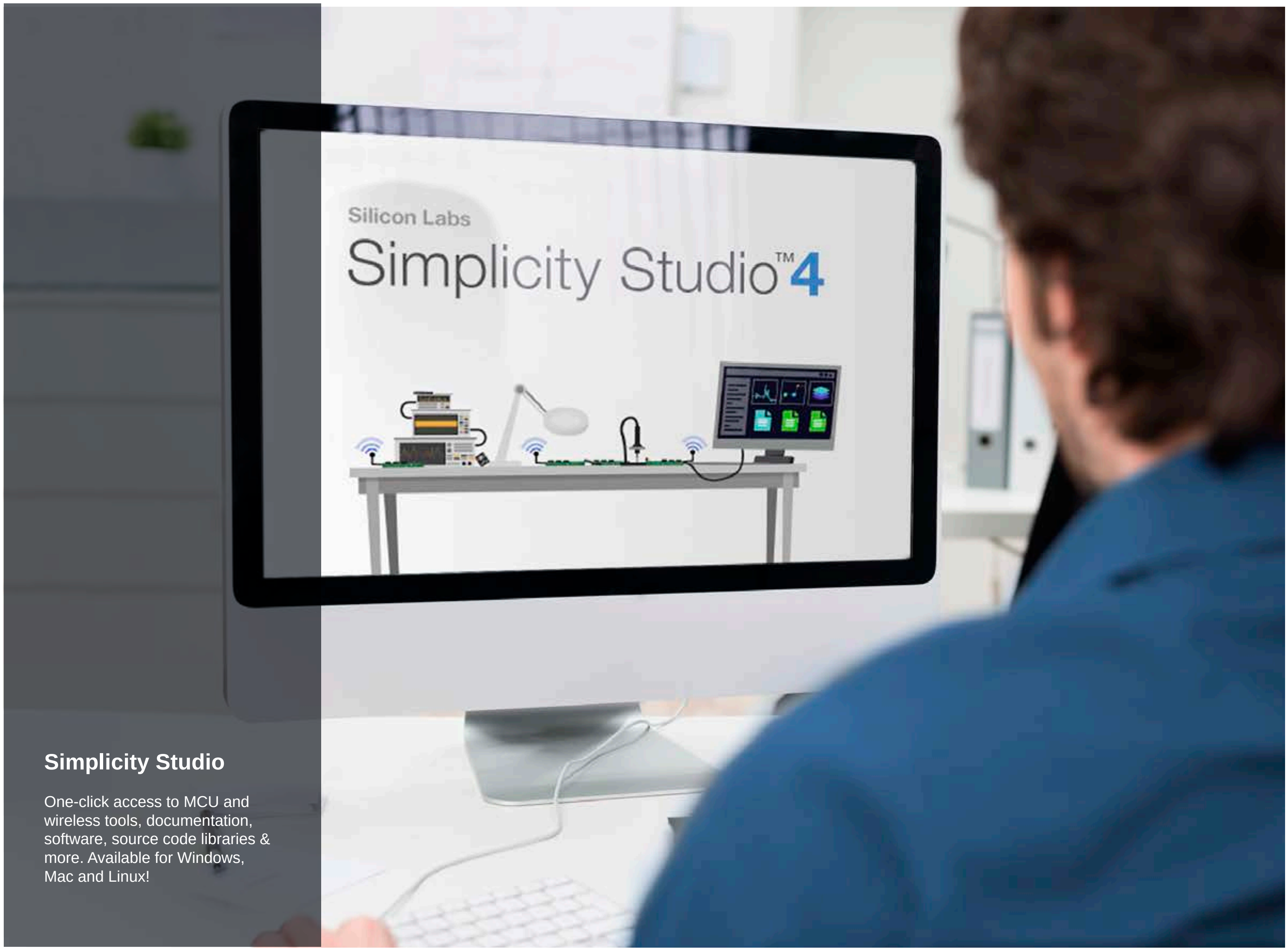
4. Code Examples

The code examples are simple and complete examples that illustrate and highlight the peripheral modes and features using the HAL. They are also modular so code can be copied into an application base, making peripheral-specific code development easy.

5. si32Library

A 32-bit platform with large memory enables a big and complex firmware system on the device. This complexity can slow development, as firmware consists of more layers with interweaving tasks and threads that are more difficult to create and debug.

The si32Library is a set of flexible, reusable, and portable source modules enabling core application level functionality for Silicon Laboratories 32-bit Precision32™ MCUs. It includes facilities for debug logging, memory allocation, data collections, data transfers, and cooperative multitasking. The si32Library package provides working abstractions of the hardware layer, reduces coding effort, and provides structure to aid and speed up top-layer application development.



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