Multicore_1
Multicore LED control

AURIX™ TC2xx Microcontroller Training
V1.0.0

One LED is controlled by using three different cores.

Core 0 is switching on an LED. When the LED flag is set, Core 1 is switching off the LED. Core 2 is controlling the state of the LED flag.

Introduction

› The AURIX™ TC2xx microcontroller architecture features up to three independent processor cores, which allow seamless hosting of multiple applications and operating systems on a unified platform.

› Due to the implementation of multiple program Flash modules with independent read interfaces, the architecture supports further real-time capabilities.

› AURIX™ is built for performance, safety and security, featuring parallel execution of processes, lockstep cores and further enhanced hardware safety mechanisms.

Hardware setup

This code example has been developed for the board KIT_AURIX_TC297_TFT_BC-Step.
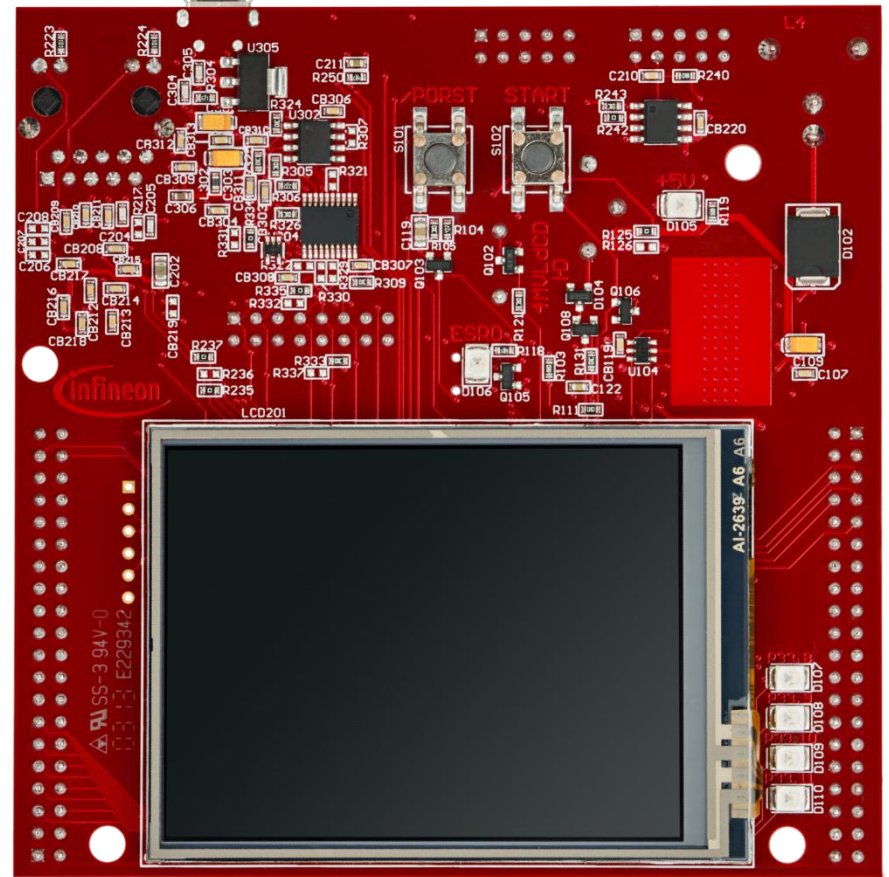
Implementation

Configure and control the LED

An LED is toggled by CPU0 and CPU1. Before using the LED, a port pin to which the LED is connected must be configured during the initialization phase.

› First step is to set the port pin to level "HIGH"; this keeps the LED turned off as a default state (*IfxPort_setPinHigh()* function).

› Second step is to set the port pin to push-pull output mode with the *IfxPort_setPinMode()* function.

Depending on the state of the global variable *g_turnLEDon*, either CPU0 turns the LED on (*IfxPort_setPinlow()*) or CPU1 turns it off (*IfxPort_setPinHigh()*).
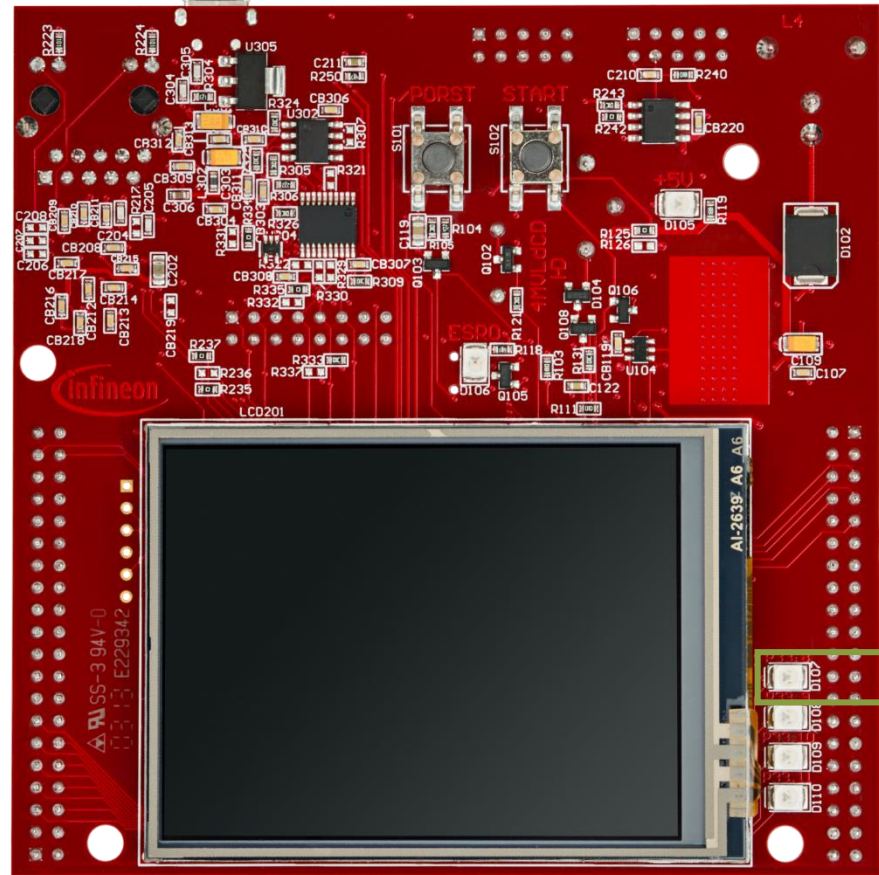
The state of the global variable *g_turnLEDon* is changed by CPU2 every second using the *wait()* function from the header *Bsp.h*.

All functions used to control the port pin are declared in the iLLD header *IfxPort.h*.

Run and Test

After code compilation and flashing the device, observe the behavior of the LED:

› The state of the LED D107 (1) toggles every second

References

› AURIX™ Development Studio is available online:
› https://www.infineon.com/aurixdevelopmentstudio
› Use the „*Import...*" function to get access to more code examples.

› More code examples can be found on the GIT repository:
› https://github.com/Infineon/AURIX_code_examples

› For additional trainings, visit our webpage:
› https://www.infineon.com/aurix-expert-training

› For questions and support, use the AURIX™ Forum:
› https://www.infineonforums.com/forums/13-Aurix-Forum

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