

Multicore_1

for KIT_AURIX_TC275_LK

Multicore LED control

AURIX™ TC2xx Microcontroller Training
V1.0.0



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Scope of work

One LED is controlled by using three different cores.

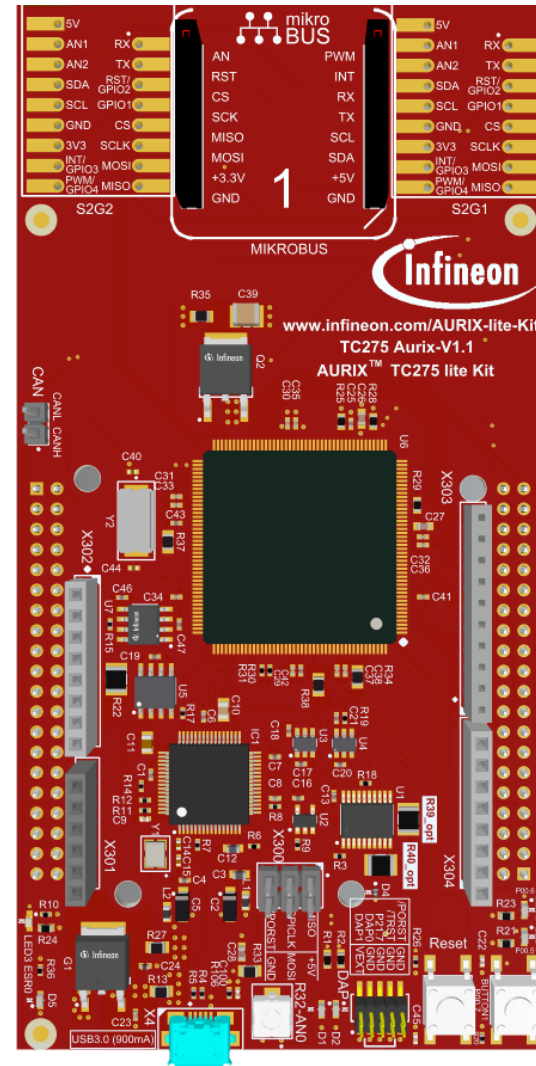
Core 0 is switching on an LED. When the LED flag is set, Core 1 is switching off the LED. Core 2 is controlling the state of the LED flag.

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_TC275_LITE`.



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

Depending on the state of the global variable *g_turnLEDOn*, either CPU0 turns the LED on (*lfxPort_setPinlow()*) or CPU1 turns it off (*lfxPort_setPinHigh()*).

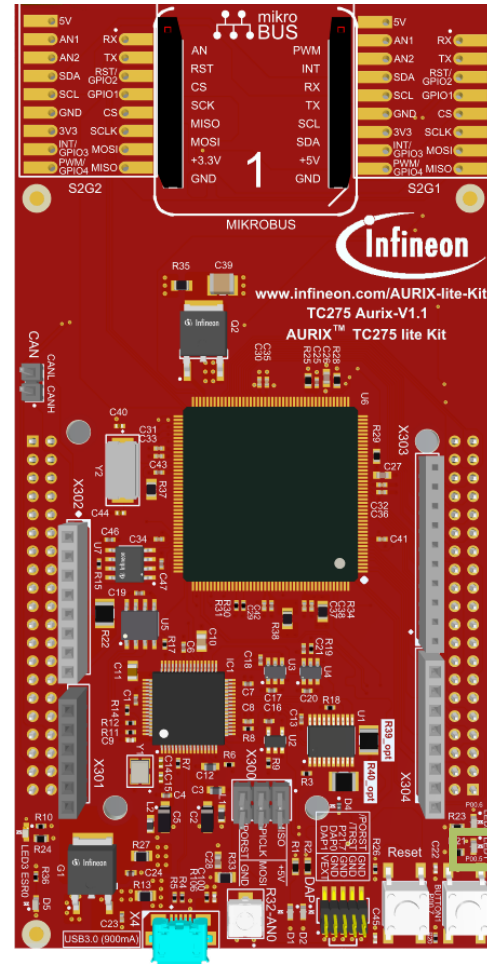
The state of the global variable *g_turnLEDOn* is changed by CPU2 every second using the *wait()* function from the header *Bsp.h*.

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

Run and Test

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

- › The state of the LED1 (1) toggles every second



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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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