GPIO_LED_Button_1
for KIT_AURIX_TC397_TFT
LED controlled via a push button

AURIX™ TC3xx Microcontroller Training
V1.0.0

An LED is controlled via a push button.

Upon pressure of a push button, an LED is turned on and the LED is turned off when releasing the button. One port pin is configured as input for checking the push button state and the other port pin is configured as output to control the LED.
Short the port pins P14.4 with P14.5 (pin 39 and 40 of header X102) to switch on the LED D110.

Introduction

› The port pins of AURIX™ can individually be configured either as input or as output.

› When configured as input, the port pin has high impedance. Alternatively, an internal weak pull-up resistor or pull-down resistor can be selected.

› As output the port pin can configured in push-pull output state or open-drain state.

› The state of a port pin can always be read back, independent whether a port pin is configured as input or output.

Hardware setup

This code example has been developed for the board KIT_A2G_TC397_5V_TFT.

Additionally, a jumper is required to short two pins of pin header X102.

Implementation

Configuring the port pins:

The function *init_GPIOs()* configures one port pin to control an LED. Additionally, two port pins are used for the "simulation" of a push button:

› The port pin with the connected LED is configured to push-pull output by calling the function *IfxPort_setPinMode()* with the function parameter *IfxPort_Mode_outputPushPullGeneral (*enumerated type value).

› The port pin used as push button is set to input direction with an internal weak pull-up by calling *IfxPort_setPinMode()* with the function parameter *IfxPort_Mode_inputPullUp.* After configuration the pin state is high, but can be pulled low by an external signal.

› The port pin "simulating" a push button is located on a pin header. With a jumper the state could be pulled to low. Low state is provided by the neighboring pin on the pin header, which is configured to push-pull output and the state is set to low by using the function *IfxPort_setPinState()* using the enumerated type value *IfxPort_State_low.*

All functions above are provided by the iLLD header *IfxPort.h.*

Implementation

Controlling the LED:

The function **control_LED***()* reads the state of the push button and, depending on the push button's state, an LED is turned on or off:
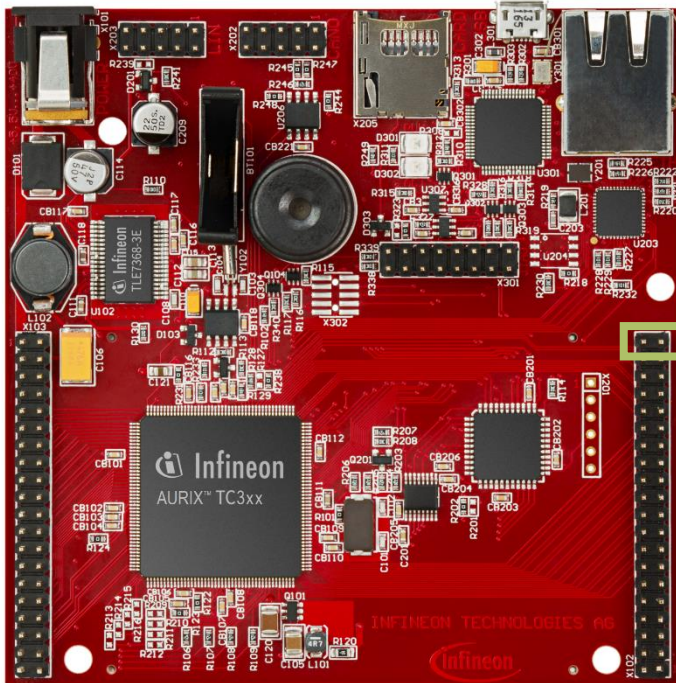
› The port pin state is read by calling the function *IfxPort_getPinState()*

› The port pin with the connected LED is set to low or high by using the function *IfxPort_setPinState()*

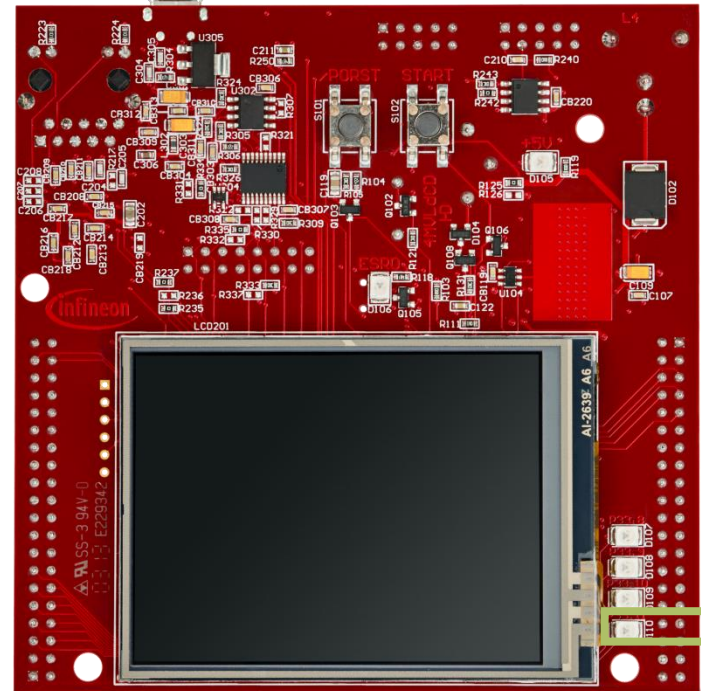All functions are provided by the iLLD header *IfxPort.h*.

Run and Test

After code compilation and flashing the device, you can observe the following behavior:

› Shorting the port pins P14.4 with P14.5 (pin 39 and 40 of header X102) with a jumper (1) turns on the LED D110 (2).

› Leaving P14.4 open (1) turns off the LED D110 (2).

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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