UART_VCOM_1
for KIT_AURIX_TC297_TFT

UART communication between PC and device

AURIX™ TC2xx Microcontroller Training
V1.0.3

Scope of work

UART communication via ASCLIN is used to send "Hello World!" from the device to the computer.

The string "Hello World!" is sent from the device to the PC via UART. The string is then visualized in a serial monitor.

Introduction

› The Asynchronous/Synchronous Interface (ASCLIN) module enables asynchronous/synchronous serial communication with external devices. For this training, asynchronous reception/transmission (UART) is used for the communication between a PC and an AURIX™ device.

Hardware setup

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

The board should be connected to the PC through the USB port (1).
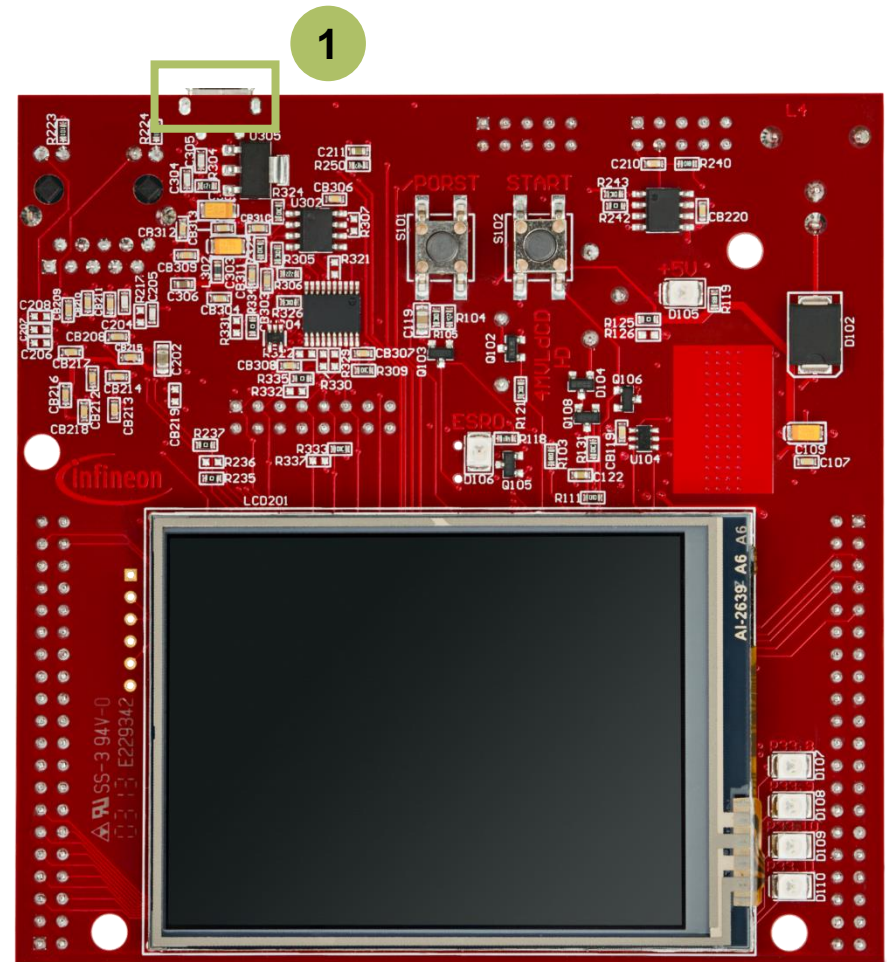
Configure the ASCLIN

Configuration of the ASCLIN module for UART communication is done in the setup phase by initializing an instance of the *IfxAsclin_Asc_Config* structure with default values through the function *IfxAsclin_Asc_initModuleConfig()*.
The following parameters are then modified:
› *baudrate* – structure to set the actual communication speed in bit/s
› *interrupt* – structure to set:
  – transmit interrupt priority (*txPriority*)
  – *typeOfService* – defines which service provider is responsible for handling the interrupt, which can be any of the available CPUs, or the DMA
› *pins* – structure to set which GPIO port pins are used for the communication
› *txBuffer*, *txBufferSize* – to configure the buffer that holds the outgoing data

Finally, the configuration is applied via the function *IfxAsclin_Asc_initModule()*.

All the above functions can be found in the iLLD header *IfxAsclin_Asc.h*.

Implementation

The UART send function:

› Sending the string "Hello World!" is implemented inside the function **send_UART_message()** which is called once after initialization of the ASCLIN module.

› This function calls **IfxAsclin_Asc_write()** which is provided by the iLLD header **IfxAsclin_Asc.h**.

Run and Test

› For this training, a serial monitor is required for visualizing the values. The monitor can be opened inside the AURIX™ Development Studio using the following icon:
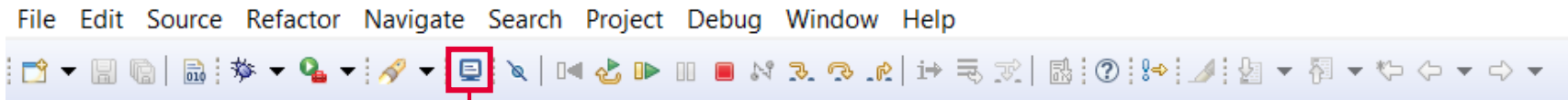
› The serial monitor must be configured with the following parameters to enable the communication between the board and the PC:
  – Speed (baud): 115200
  – Data bits: 8
  – Stop bit: 1
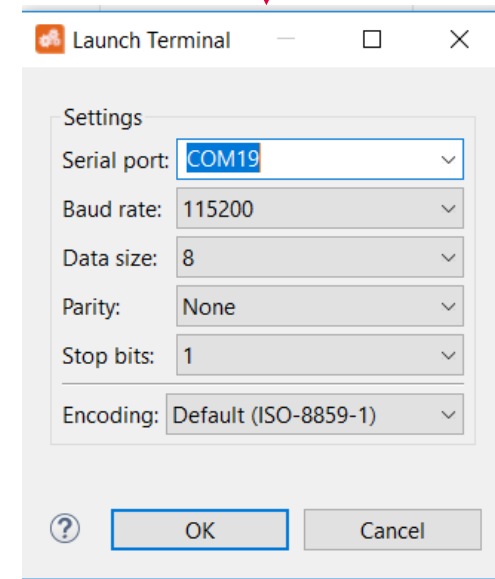
Run and Test

After code compilation and flashing the device,
perform the following steps:

› The board must be connected to PC via the USB cable
› Open a serial monitor with the above configuration and connect.
› The board has to be reset using the PORST button
› The string can be observed on the serial monitor

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

Revision history

Revision	Description of change
V1.0.3	Update of version to be in line with the code example's version
V1.0.2	Implementation and Run and Test sections updated with a better description of ASCLIN configuration and removal of the double terminal presentation
V1.0.1	Run and Test section updated with the new terminal feature and a different baud rate
V1.0.0	Initial version

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Do you have a question about this document?
Email: erratum@infineon.com

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