UART_VCOM_1
UART communication between PC and device
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).
Implementation

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 the following parameters:

- **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 will hold the outgoing data

The function `IfxAsclin_Asc_initModuleConfig()` fills the configuration structure with default values and `IfxAsclin_Asc_initModule()` initializes the module with the user configuration.

All the above functions can be found in the iLLD header `IfxAsclin_Asc.h`.
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`. 
In order to see the message, it is required to have a serial monitor (e.g. PuTTY, HTerm), which has to be configured with the following parameters:

- **Port:** COMx (e.g. COM8, COM port number depends on the setup)
- **Baud rate:** 19200
- **Data bits:** 8
- **Parity:** None
- **Stop bits:** 1

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](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](https://github.com/Infineon/AURIX_code_examples)

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

› For questions and support, use the AURIX™ Forum:
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