

UART_VCOM_1

UART communication between PC and device

AURIX™ TC2xx Microcontroller Training
V1.0.0



[Please read the Important Notice and Warnings at the end of this document](#)

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.

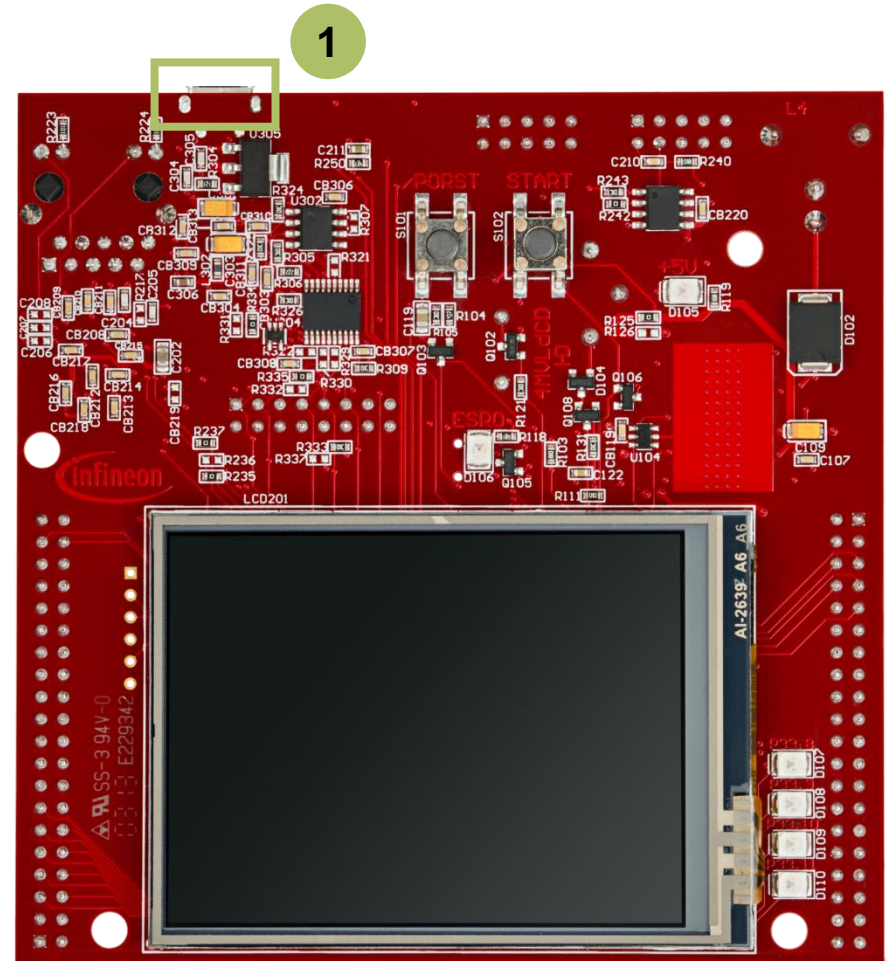
Introduction

- › 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***.

Implementation

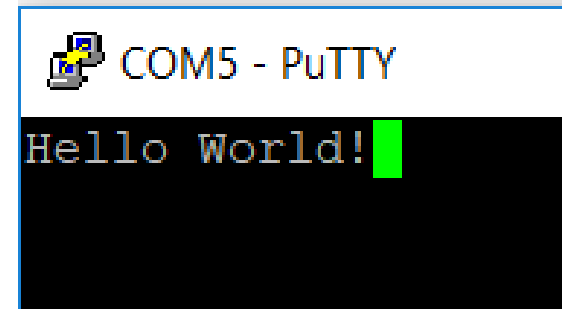
The UART send function:

- › 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 & Test

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>
- > 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>

Trademarks

All referenced product or service names and trademarks are the property of their respective owners.

Edition 2019-10

Published by

Infineon Technologies AG
81726 Munich, Germany

© 2019 Infineon Technologies AG.
All Rights Reserved.

Do you have a question about this document?

Email: erratum@infineon.com

Document reference

UART_VCOM_1

IMPORTANT NOTICE

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics (“Beschaffenheitsgarantie”).

With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

In addition, any information given in this document is subject to customer’s compliance with its obligations stated in this document and any applicable legal requirements, norms and standards concerning customer’s products and any use of the product of Infineon Technologies in customer’s applications.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer’s technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

For further information on the product, technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies office (www.infineon.com).

WARNINGS

Due to technical requirements products may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by Infineon Technologies in a written document signed by authorized representatives of Infineon Technologies, Infineon Technologies’ products may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.