USB CDC Class as Virtual Serial Port

This application note shows how to create a USB device compliant to the standard USB Communications Device Class (CDC) on an XMOS multicore microcontroller.

The code associated with this application note provides an example of using the XMOS USB Device Library (XUD) and associated USB class descriptors to provide a framework for the creation of a USB CDC device that implements Abstract Control Model (ACM).

This example USB CDC ACM implementation provides a Virtual Serial port running over high speed USB. The Virtual Serial port supports the standard requests associated with ACM model of the class.

A serial terminal program from host PC connects to virtual serial port and interacts with the application. This basic application demo implements a loopback of characters from the terminal to the XMOS device and back to the terminal. This application demo code demonstrates a simple way in which USB CDC class devices can easily be deployed using an xCORE-USB device.

Note: This application note provides a standard USB CDC class device and as a result does not require external drivers to run on Windows, Mac or Linux.

Required tools and libraries

- xTIMEcomposer Tools - Version 14.0.0
- XMOS USB library - Version 3.1.0

Required hardware

This application note is designed to run on an XMOS xCORE-USB series device.

The example code provided with the application has been implemented and tested on the xCORE-USB sliceKIT (XK-SK-U16-ST) but there is no dependancy on this board and it can be modified to run on any development board which uses an xCORE-USB series device.

Prerequisites

- This document assumes familiarity with the XMOS xCORE architecture, the Universal Serial Bus 2.0 Specification and related specifications, the XMOS tool chain and the xC language. Documentation related to these aspects which are not specific to this application note are linked to in the references appendix.
- For descriptions of XMOS related terms found in this document please see the XMOS Glossary[1].
- For the full API listing of the XMOS USB Device (XUD) Library please see the document XMOS USB Device (XUD) Library[2].
- For information on designing USB devices using the XUD library please see the XMOS USB Device Design Guide for reference[3].

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[1]http://www.xmos.com/published/glossary
[2]http://www.xmos.com/published/xuddg
[3]http://www.xmos.com/published/xmos-usb-device-design-guide

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