USB Vendor Specific Device

This application note shows how to create a vendor specific USB device which is on an XMOS multicore microcontroller.

The code associated with this application note provides an example of using the XMOS USB Device Library and associated USB class descriptors to provide a framework for the creation of a USB vendor specific device.

This example uses XMOS libraries to provide a simple USB bulk transfer device running over high speed USB. The code used in the application note creates a device which supports the standard requests associated with this class of USB devices.

The application operates as a simple data transfer device which can transmit and receive buffers between a USB host and XMOS based USB device. This demonstrates the simple way in which custom USB devices can easily be deployed using an xCORE device.

Note: This application note provides a custom USB class device as an example and requires a driver to run on windows. For this example we have used the open source libusb host library and windows driver to allow the demo device to be used from the host machine. On other host platforms supported by this application example a host driver is not required to interact with libusb.

Required tools and libraries

- xTIMEcomposer Tools - Version 13.0
- XMOS USB library - Version 1.3.2rc0

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 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