CyUSB FX3/FX2 MAC library
Version 1.0.1
User Guide

1. INTRODUCTION

The CyUSB Suite for MAC OS is a set of tools and libraries that allow users to program and do data transfers from/to Cypress USB devices from a MAC OS based host.

This document describes the procedure to install, configure and use the CyUSB Suite for MAC.

CyUSB Suite Components

The core of the CyUSB suite is a libcyusb library that provides a set of convenience API that allows user mode applications to program Cypress USB devices and to do data transfers from/to them. The libcyusb library is implemented as a wrapper around the open source libusb library, which needs to be separately installed.

In addition to the sources, headers and build scripts for the libcyusb library, the CyUSB suite package contains the source and build scripts for a set of sample applications using this library. These sample applications demonstrate how to get handles to, program and perform control, bulk and isochronous data transfers to the Cypress USB devices (EZ-USB FX2LP and EZ-USB FX3).

The example applications make use of pre-compiled firmware binaries for the FX2LP and FX3 USB controllers to demonstrate the features supported. Only the binaries for these firmware applications are included in the CyUSB package.

The actual firmware itself is developed using the SDKs for the EZ-USB products that are available for download from the Cypress website.

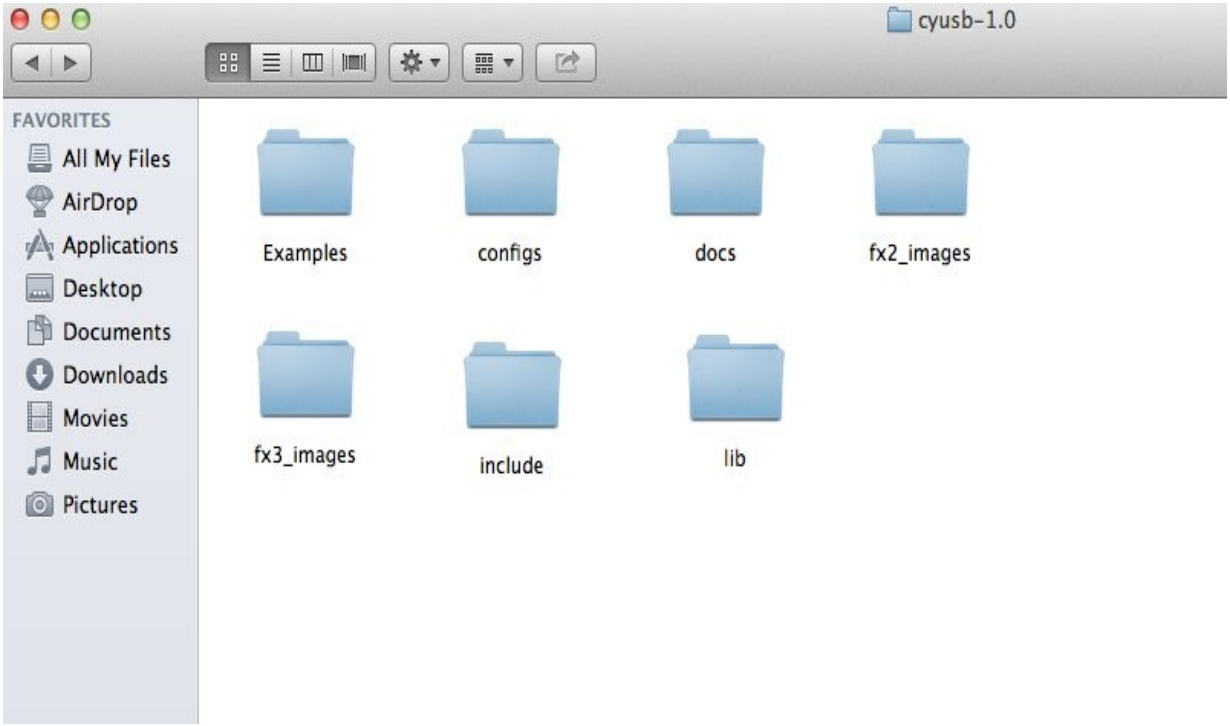
Cypress provides separate tools for downloading and testing firmware images on Microsoft Windows and Linux platforms. While these are GUI based tools, the CyUSB Suite for MAC only provides a set of command line applications demonstrating the capabilities of the libcyusb library.

The driver itself has been developed on top of the open source libusb driver. The libusb driver is available at http://sourceforge.net/projects/libusb/files/libusb-1.0/. Different versions of libusb-1.0 are available for download. At the moment of this writing, the latest version used is libusb-1.0.9.tar.bz2.

2. BUILDING AND INSTALLING THE Library

In order to build the CyUSB driver on OSX, user must have installed XCODE and command line tools of XCODE.

The CyUSB Suite is provided in the form of a compressed TAR archive (cyusb_mac.1.0.tar.bz2). On extracting this archive, the following directory tree is created:



/lib: Contains the source file of the library which is a wrapper written on top of libusb.1.0.9

/fx2_images: FX2 firmware images.

/fx3_images: FX3 firmware images.

/include: library header file.

/configs: Configuration files (cyusb.conf).

/docs: Contains all the necessary documentation files.

/examples: Sample example files for showcasing some of the functionalities of libcyusb library.

2.1 *Building the library*

In order to build the libcyusb, install libusb.1.0.9 from http://sourceforge.net/projects/libusb/files/libusb-1.0/. Follow the installation procedure as documented in libusb folder.

Once libusb is installed, go to the ***lib*** directory and invoke “make”. This will create a dynamic library called libcyusb.0.1.dylib and a soft link to the library called libcyusb.dylib.

Copy these library files to /usr/local/lib to make them a part of the local libraries for the host. Copy the configs/cyusb.conf file to the /etc folder. This file lists the set of VID/PID pairs that devices of interest for the CyUSB library will have.

Note that super-user permission is required for these two copy operations.

Set an environment variable called CYUSB_ROOT that points to the folder where the CyUSB package has been extracted. This variable is used by the download_fx3 application to locate the cyfxflashprog firmware image file.

2.2 Building sample Examples.

The ***examples*** directory contains sources for application samples which showcase functionalities such as firmware download to FX2LP and FX3, Bulk Read/Write, Isochronous Read/Write and Bulk Read/Write performance test.

Go to the ***examples*** folder and invoke “make” to create the binary of all the source files. Make sure libcyusb.dylib is built and copied into /usr/local/lib prior to building these examples.

Refer to the README.txt file for information regarding the usage of these executables.

2.3 *Configuration files.*

The libcyusb.dylib library uses cyusb.conf file for identifying devices of interest for the library. cyusb.conf file is a configuration file containing VID and PID of all the Cypress USB devices which are under consideration. This file needs to be copied to the /etc folder before any of the applications can be used. To add a new device, user can update the VID and PID list in cyusb.conf file, and then copy it to the /etc directory.