Cypress EZ-PD™ CCGx Host SDK Release Notes

Version 3.2.1, June 29, 2018

Thank you for your interest in the EZ-PD™ CCGx Host Software Development Kit (SDK). This SDK supports the CCG2, CCG3, CCG4 and CCG5 families of Type-C controllers and is targeted at creating USB-PD port controller applications for desktop and notebook computers.

Introduction

The CCGx Host SDK provides a set of firmware resources that allows users to build customized applications using the Type-C port controllers from Cypress.

This is based on a CCGx firmware stack and provides programming hooks and interfaces for customers to implement their own policy and system management schemes.

The key application-level requirements for the firmware stack are as follows:

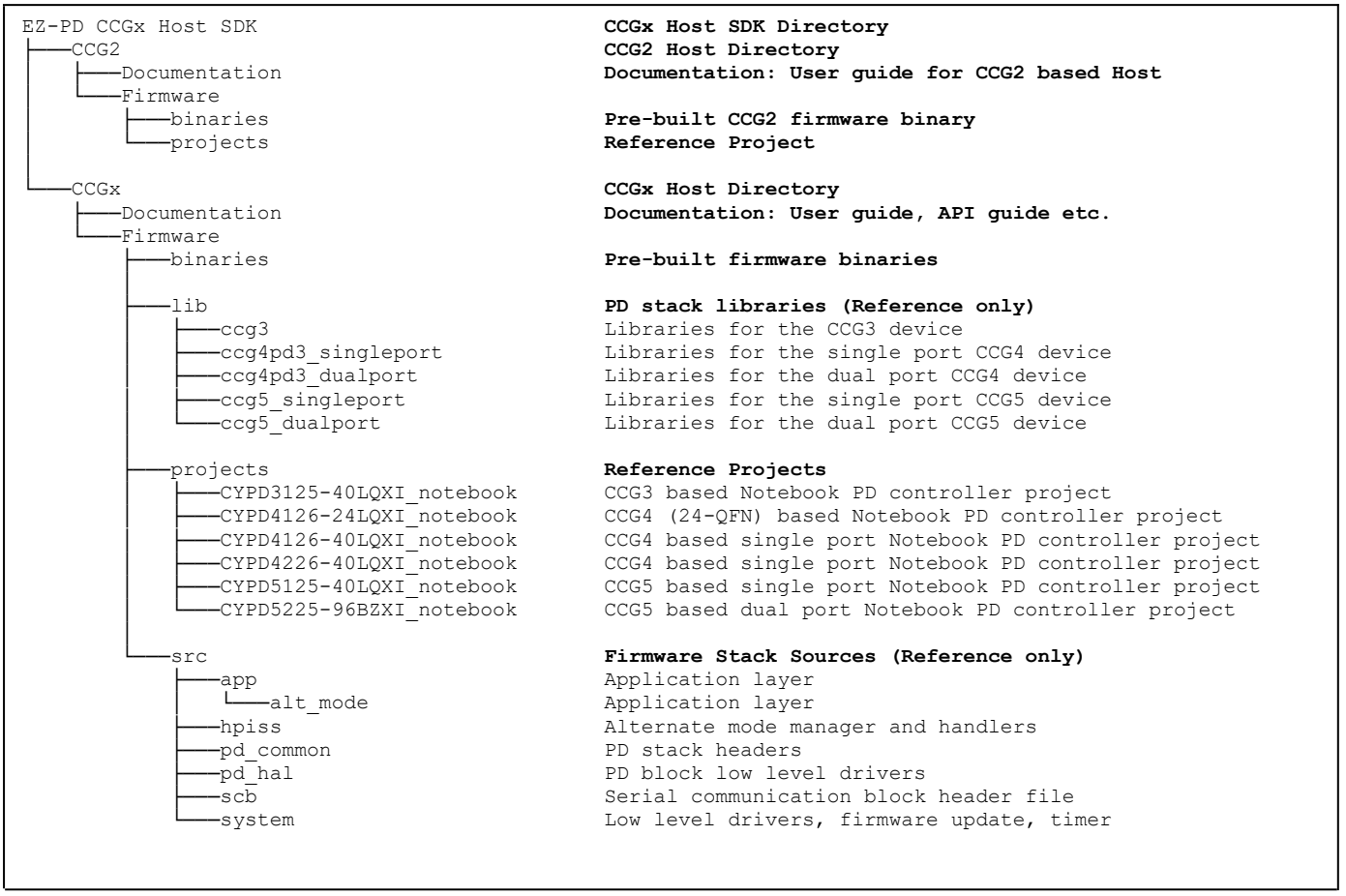
- USB Type-C Revision 1.2 and USB-PD Revision 2.0 specification compliant PD stack for CCG2.
- USB Type-C Revision 1.2 and USB-PD Revision 3.0 specification compliant PD stack for CCG3, CCG4, and CCG5.
- Drivers for the various hardware blocks on the CCGx controllers.
- Allow manufacturing-level customization of device parameters such as power profiles, default port behavior, Over Voltage Protection, and so on, without changing the firmware.
- Map firmware to system hardware design changes without any impact on the core firmware modules.
- Facilitate source-level debugging so that new customers can get familiarized with the stack.

Firmware Organization

The CCGx Firmware Stack is released in the form of an SDK, which contains the firmware stack as well as reference firmware projects that use the stack to implement USB-PD applications.

The firmware stack and reference projects are available in the ***CCGx*** sub-directory and the current stack version is 3.2.1 Build 1658. All stack documentation for CCGx device family is available under ***CCGx > Documentation***.

Figure 1: EZ-PD™ CCGx Host SDK Directory Structure



CCGx contain the following folders:

- **Documentation**: The docs folder contains the EZ-PD™ CCGx SDK documentation, which includes release notes, user guide, and API reference guide.
- **Firmware**: The Firmware folder contains the firmware stack sources, reference projects, and pre-built firmware binaries targeted for the Kits and reference designs from Cypress.
    - **binaries**: The binaries folder contains the pre-built firmware binaries
    - **lib**: The lib folder contains the USB-PD stack and HPI module in pre-compiled library format. Separate folders are created for the libraries compiled for various CCGx device families.

      NOTE: This directory is made available for reference. Each reference project has a copy of the relevant libraries added to it locally.
    - **projects**: The projects folder contains the sources and PSoC Creator workspaces for the port controller designs.
    - **src**: The src folder contains the sources for the CCGx firmware stack organized by firmware module.

      NOTE: This directory is made available for reference. Each reference project has a copy of the src directory added to it locally.

      The src folder has the following sub-folders:
        - **app:** The app folder contains the top-level application layer functionality that implements the required USB-PD controller functions. This includes functionality such as PDO evaluation and contract negotiation, VDM handling for both DFP and UFP roles, handling of control messages such as role swap; and alternate mode discovery and negotiation. The alternate mode specific implementation can be found in the app/alt_mode directory. It also includes handlers for legacy charger detection and Type-A port controller detection.
        - **hpiss:** The hpiss folder contains the API interface definition for the Host Processor Interface implemented by the CCG5 firmware.
        - **pd_common:** The pd_common folder contains the headers for the core Type-C and USB-PD stack for the CCGx device. This includes the HAL, the Type-C port manager, the USB-PD protocol layer, the USB-PD policy engine, and the Device Policy Manager.
        - **pd_hal:** The pd_hal folder contains the low-level driver header and source files for USB-PD hardware block.
        - **scb:** The scb folder contains the driver code for I2C slave mode operation using the Serial Controller Blocks (SCB) on the CCGx device. Since I2C slave mode is the most commonly-used interface for CCGx, a specially optimized driver is provided for the same.
        - **system:** The system folder contains header and source files relating to the CCGx device hardware and registers, bootloader and flash access functions, low-level drivers for the GPIO blocks on the CCGx device, and a soft timer implementation that is used by the firmware stack.

Tool Requirements

1. This version of SDK requires PSoC Creator 4.2 build 641 or higher for compilation.

   Download the latest PSoC Creator version from:
   http://www.cypress.com/products/psoc-creator-integrated-design-environment-ide

   You can download older versions of PSoC Creator from:
   http://www.cypress.com/documentation/software-and-drivers/psoc-creator-software-archive
2. This version of SDK requires EZ-PD™ Configuration Utility version 1.1 build 188 or higher.

   Download the latest version of the EZ-PD™ Configuration Utility installer from:
   http://www.cypress.com/ezpdutility

Technical Support

For further assistance, go to http://www.cypress.com/go/support.

Additional Information

For more information about the EZ-PD Configuration Utility, visit the web page:
http://www.cypress.com/documentation/software-and-drivers/ez-pd-configuration-utility
For more information about the Cypress Type-C controller family, visit the web page:
http://www.cypress.com/products/usb-type-c-and-power-delivery

Cypress Semiconductor
198 Champion Ct.
San Jose, CA 95134-1709 USA
Tel: 408.943.2600
Fax: 408.943.4730
Application Support Hotline: 425.787.4814
www.cypress.com