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CY4521

EZ-PD™ CCG2 Evaluation Kit Guide

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Safety Information



The CY4521 EZ-PD™ CCG2 EVK is intended for use as a development platform for hardware or software in a laboratory environment. The board is an open-system design, which does not include a shielded enclosure. Due to this reason, the board may cause interference to other electrical or electronic devices in close proximity. In such cases, take adequate preventive measures. Also, do not use this board near any medical equipment or RF devices.

Attaching additional wiring to this product or modifying the product operation from the factory default may affect its performance and cause interference with other apparatus in the immediate vicinity. If such interference is detected, suitable mitigating measures must be taken.

The CY4521 EZ-PD CCG2 EVK as shipped from the factory has been verified to meet with requirements of CE as a Class A product.



	<p>The CY4521 EZ-PD CCG2 Evaluation Kit boards contain ESD-sensitive devices. Electrostatic charges readily accumulate on the human body and any equipment, which can cause a discharge without detection. Permanent damage may occur to devices subjected to high-energy discharges. Proper ESD precautions are recommended to avoid performance degradation or loss of functionality. Store unused CY4521 EZ-PD CCG2 Evaluation Ki boards in the protective shipping package.</p>
	<p>End-of-Life/Product Recycling</p> <p>The end-of-life cycle for this kit is five years from the date of manufacture mentioned on the back of the box. Contact the nearest recycler to discard the kit.</p>

General Safety Instructions

ESD Protection

ESD can damage boards and associated components. Cypress recommends that the user perform procedures only at an ESD workstation. If an ESD workstation is not available, use appropriate ESD protection by wearing an antistatic wrist strap attached to the chassis ground (any unpainted metal surface) on the board when handling parts.

Handling Boards

The boards provided with CY4521 EZ-PD CCG2 Evaluation Kit are sensitive to ESD. This also applies to the boards that are provided with a plastic casing when they are removed from the casing. Hold the boards only by the edges. After removing a board from the box/casing, place it on a grounded, static-free surface. Use a conductive foam pad, if available. Do not slide the board over any surface.

1. Introduction



The CY4521 EZ-PD™ CCG2 Evaluation Kit (EVK) is based on the CCG2 product family of Cypress's USB Type-C microcontrollers. This EVK is primarily intended to be an evaluation vehicle for USB Type-C host and client systems that house a Type-C connector as well as for notebook applications. For USB Power Delivery (PD), the base board and daughter card can be configured as a downstream facing port (DFP) or an upstream facing port (UFP). The kit also serves as a platform to evaluate other features of Type-C such as SuperSpeed USB and DisplayPort data transfer.

1.1 Kit Contents

The CY4521 EZ-PD CCG2 EVK consists of the following contents:

- CCG EVK Base Board
- CY4521 CCG2 Daughter Card (mounted on the CCG EVK Base Board)
- 24-V DC 65 W Power Adapter (24 V, 2.7 A)
- USB 3.0 Type-A to Type-B cable
- USB Type-C to Type-A adapter
- USB 2.0 Type-A to Mini-B Cable
- Quick Start Guide

1.1.1 Hardware Not Included With Kit

The CY4521 EZ-PD CCG2 EVK does not come with all of the hardware needed to perform the demonstrations documented in sections [SuperSpeed USB Demo](#), [DisplayPort Demo](#), [SuperSpeed USB and DisplayPort Demo](#) and [Dead Battery Demo](#) of the [Kit Operation](#) chapter. The following items are not included:

- SuperSpeed USB flash drive needed for the [SuperSpeed USB Demo](#) section.
- DisplayPort cables needed for the [DisplayPort Demo](#) section. They are required to make connections from a PC to the CCG EVK base board. If the PC has a mini-DisplayPort, then a mini-DisplayPort to DisplayPort cable will be required. If the PC has a DisplayPort, then a DisplayPort to DisplayPort cable will be required. Recommended cables are listed in [Recommended Cables and Adapters](#) section.
- USB Type-C to DP/HDMI/VGA adapter and USB Type-C Multiport Adapter to connect a display monitor and a USB flash drive to the CY4521 EZ-PD CCG2 EVK. Recommended adapters and cables needed for them to connect to monitors are listed in [Recommended Cables and Adapters](#) section.

- A digital multimeter to measure voltage for the [Dead Battery Demo](#) section. A standard multimeter is required to measure the output voltage on the CCG EVK base board.
- A USB Type-C Power Adapter for the [Dead Battery Demo](#) section

1.2 Getting Started

For instructions on how to run a quick demonstration and observe kit functionality, refer to the [SuperSpeed USB Demo](#) section. That section also provides complete instructions on configuring the CCG EVK base board and CY4521 CCG2 daughter card.

1.3 List of Recommended Hardware

1.3.1 Recommended Cables and Adapters

See [Table 1-1](#) to obtain a set of cables recommended to work with this kit – the cables that you need will depend on the hardware you are connecting to the kit (i.e. the PC display output type and the monitor input type). This kit is not shipped with these cables and adapters and they are required to run the [DisplayPort Demo](#) and [Dead Battery Demo](#).

Table 1-1. List of Recommended Cables and Adapters

No.	Description	For Hardware	Manufacturer	MPN	Vendor Link
1	DisplayPort to DisplayPort Cable (6", gold plated)	PC with DisplayPort	Cable Matters	102005-6	Amazon Link
2	Mini DisplayPort to DisplayPort Cable (3", gold plated)	PC with Mini DisplayPort	Cable Matters	101007-BLACK-3	Amazon Link
3	Type-C to Display Port Adapter	Monitor with DisplayPort	Belinda	-	Amazon Link
4	Type-C to HDMI Adapter	Monitor with HDMI	Cable Matters	-	Amazon Link
5	Type-C to VGA Adapter	Monitor with VGA	Cable Matters	-	Amazon Link
6	Type-C Power Adapter that supports 9V or above	All	Apple	-	Apple Store Link
7	Type-C Multiport Adapter	Monitor with HDMI and USB SuperSpeed flash drive	Apple	-	Apple Store Link
		Monitor with VGA and USB SuperSpeed flash drive	Apple	-	Apple Store Link
		Monitor with HDMI and USB SuperSpeed flash drive	Samsung	-	Amazon Link

Use item 1 or 2 in [Table 1-1](#) to connect the PC's DisplayPort or Mini-DisplayPort to the DisplayPort of CY4521 EZ-PD CCG2 EVK. Depending on the display monitor you have, use item 3, 4 or 5 in [Table 1-1](#) to connect from the USB Type-C port of the CY4521 EZ-PD CCG2 EVK to the display monitor itself. Use item 6 to run the [Dead Battery Demo](#).

1.4 Acronyms

Table 1-2. Acronyms Used in this Document

Acronym	Definition
ADC	Analog-to-Digital Converter
CC	Configuration Channel
CCG	Cable Controller Generation
DFP	Downstream Facing Port
DP	DisplayPort
DRP	Dual Role Port

Acronym	Definition
EC	Embedded Controller
EMCA	Electronically Marked Cable Assembly
EMI	Electromagnetic Interference
ESD	Electrostatic Discharge
EVK	Evaluation Kit
FET	Field-Effect Transistor
GPIO	General-Purpose Input/Output
HID	Human Interface Device
HPD	Hot Plug Detect
IC	Integrated Circuit
I ² C	Inter-Integrated Circuit
IDE	Integrated Development Environment
LED	Light-Emitting Diode
PMIC	Power Management Integrated Circuit
PS	Power Supply
PSoC [®]	Programmable Systems-on-Chip
PWM	Pulse-Width Modulation
QFN	Quad Flat No-lead (package)
SS	SuperSpeed
SWD	Serial Wire Debug
UART	Universal Asynchronous Receiver Transmitter
UFP	Upstream Facing Port
USB	Universal Serial Bus
USB-PD	Universal Serial Bus Power Delivery
XRES	External Reset I/O Pin

2. Kit Installation



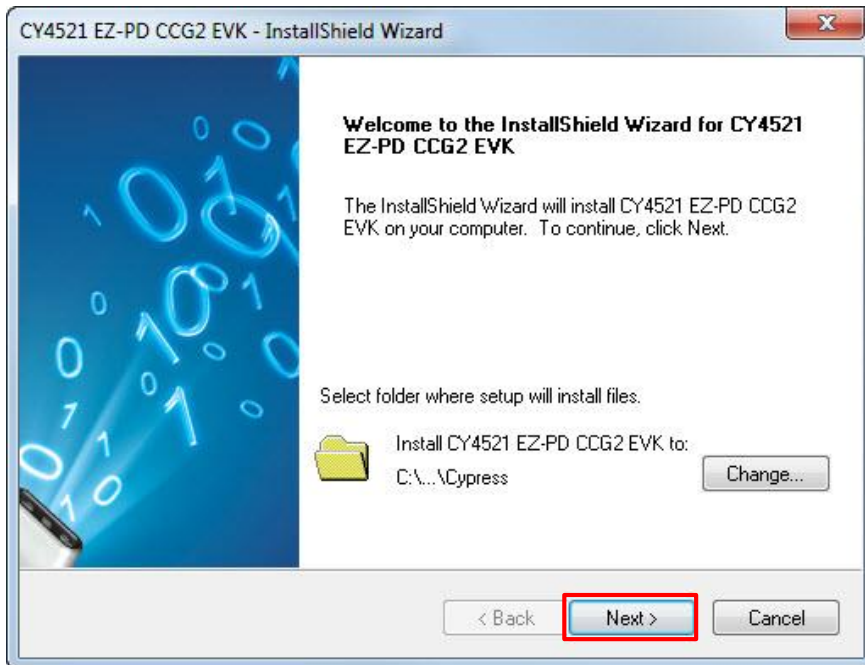
This chapter describes the procedure to install the CY4521 EZ-PD CCG2 EVK software.

2.1 CY4521 EZ-PD™ CCG2 EVK Kit Software Installation

To install the kit software, follow these steps:

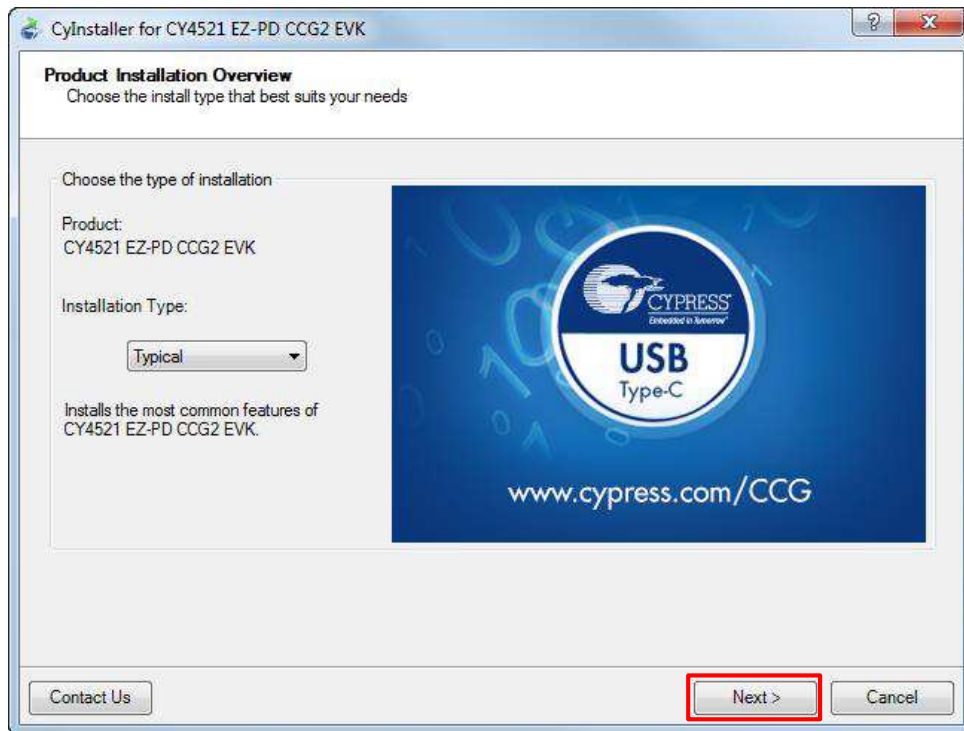
- a. Download the latest kit software setup file “CY4521 EZ-PD CCG2 EVK Complete Setup” from the kit’s website: www.cypress.com/CY4521. This package contains the kit hardware files, firmware binaries and the kit documentation (User Guide, Quick Start Guide, and Release Notes). Double-click on the executable to start the installation. Click **Next** when the screen shown in [Figure 2-1](#) appears.

Figure 2-1. CY4521 EZ-PD CCG2 EVK Installer Screen



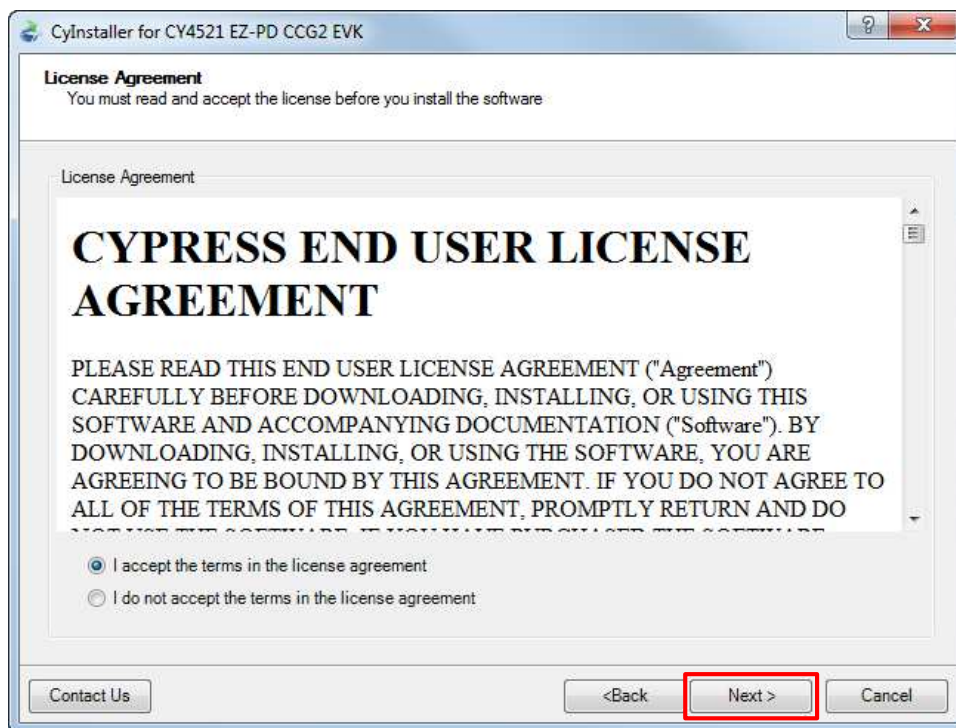
- b. Select the required **Installation Type** and click **Next** to start the install ([Figure 2-2](#)). For first-time installation, it is recommended that you select “Typical” as the **Installation Type**.

Figure 2-2. Installation Wizard



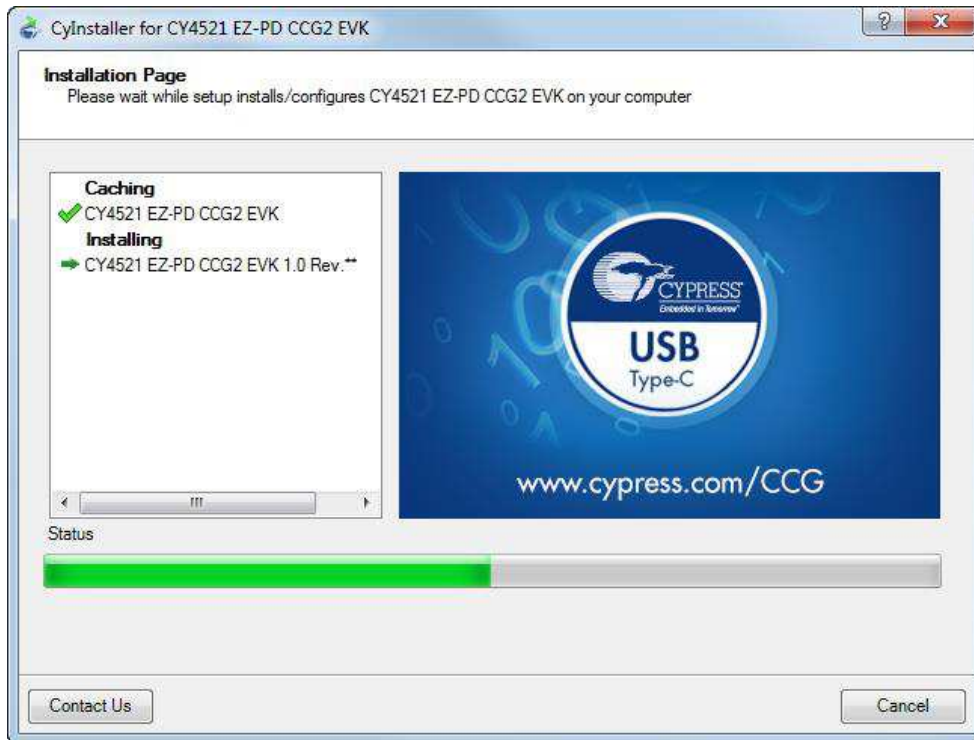
- c. Accept the license agreement for the software components and click **Next** (Figure 2-3).

Figure 2-3. License Agreement



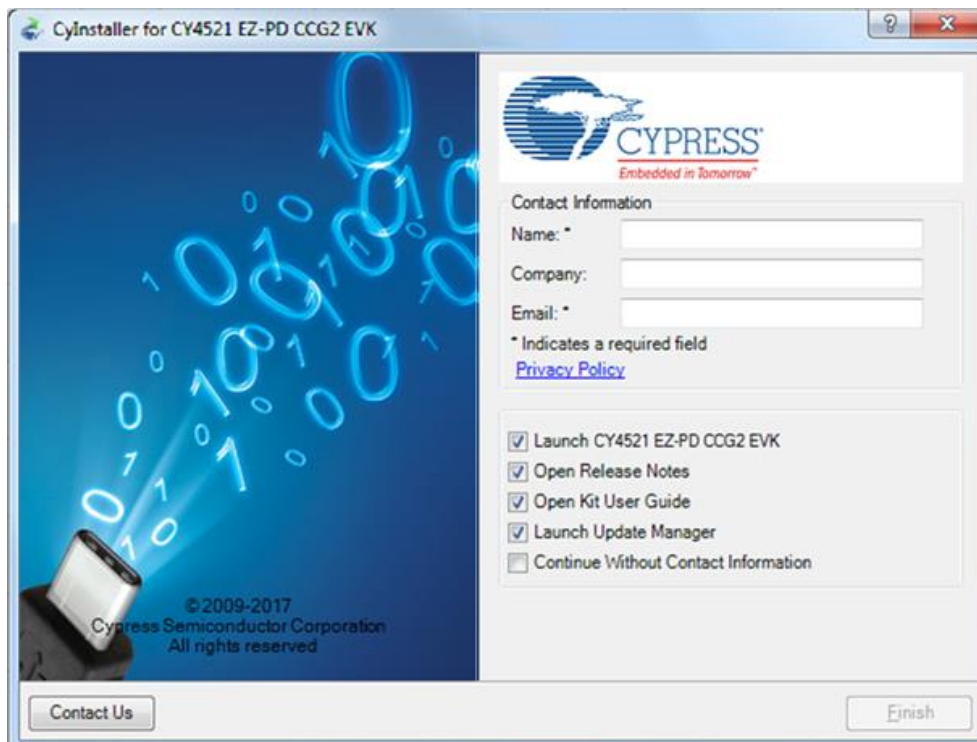
d. Figure 2-4 shows the installation progress.

Figure 2-4. Installation Progress



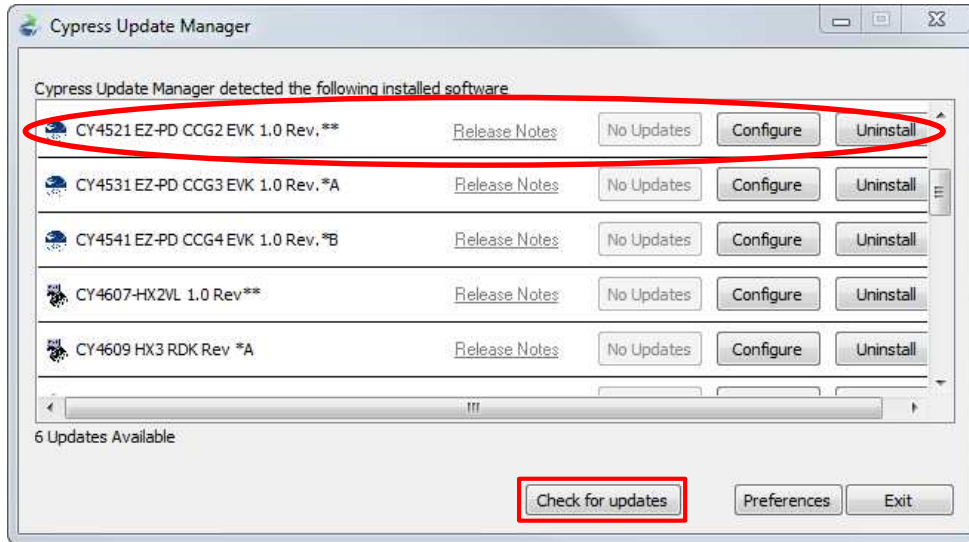
e. Enter **Contact Information** or select **Continue Without Contact Information** and click **Finish**. (Figure 2-5).

Figure 2-5. Software Installation Complete



- f. When installation is complete, you have the option to **Launch Cypress Update Manager** (Figure 2-6) to ensure you have the latest software package. Click the **Check for updates** button at the bottom of the window. If “No Updates” appears adjacent to the CY4521 EZ-PD CCG2 EVK, click the **Exit** button. If there are updates, click the **Update** button to download and install the latest kit package.

Figure 2-6. Cypress Update Manager



Note: You can launch the Cypress Update Manager at any time from **Start > All Programs > Cypress > Cypress Update Manager**.

- g. After the installation is complete, the contents are available at the following location: <Install Directory>\CY4521 EZ-PD CCG2 EVK\1.0.

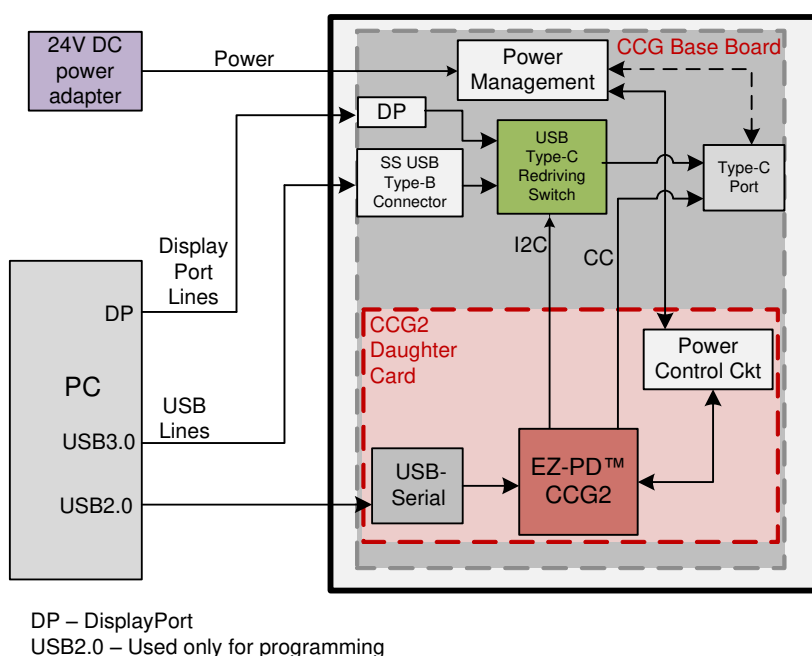
Note: On the Windows 32-bit platform, the default <Install Directory> is C:\Program Files\Cypress; on the Windows 64-bit platform, it is C:\Program Files (x86) \Cypress.

3. CY4521 EZ-PD™ CCG2 EVK Hardware Details



The CY4521 EZ-PD CCG2 EVK consists of a CCG EVK base board and a CCG2 daughter card. The CCG2 device is mounted on the daughter card, which is connected to the base board. The hardware architecture of CY4521 is captured in [Figure 3-1](#).

Figure 3-1: CY4521 EZ-PD CCG2 EVK Architecture



The CCG EVK base board consists of a DC input, a USB Type-C Redriving Switch IC, a DisplayPort input, a SuperSpeed Type-B port, and one Type-C port. The CCG2 daughter card consists of the CCG2 device and a USB-Serial IC to provide a USB interface for debugging and programming. The CC lines of the CCG2 device are connected to the Type-C port. The USB Type-C Redriving Switch IC is controlled by the CCG2 device over an I²C interface.

The CY4521 EZ-PD CCG2 EVK has power provider and consumer path control circuitry to showcase EZ-PD CCG2's ability to switch its power role from a provider to a consumer and vice versa. This EVK has over-voltage and over-current protection circuitry for VBUS and it also supports programming of the EZ-PD CCG2 device over SWD and I²C interfaces. The EVK supports PCs, notebooks, tablets, and other applications that would host a Type-C interface. It is primarily intended as an evaluation vehicle for USB host systems that house a Type-C connector.

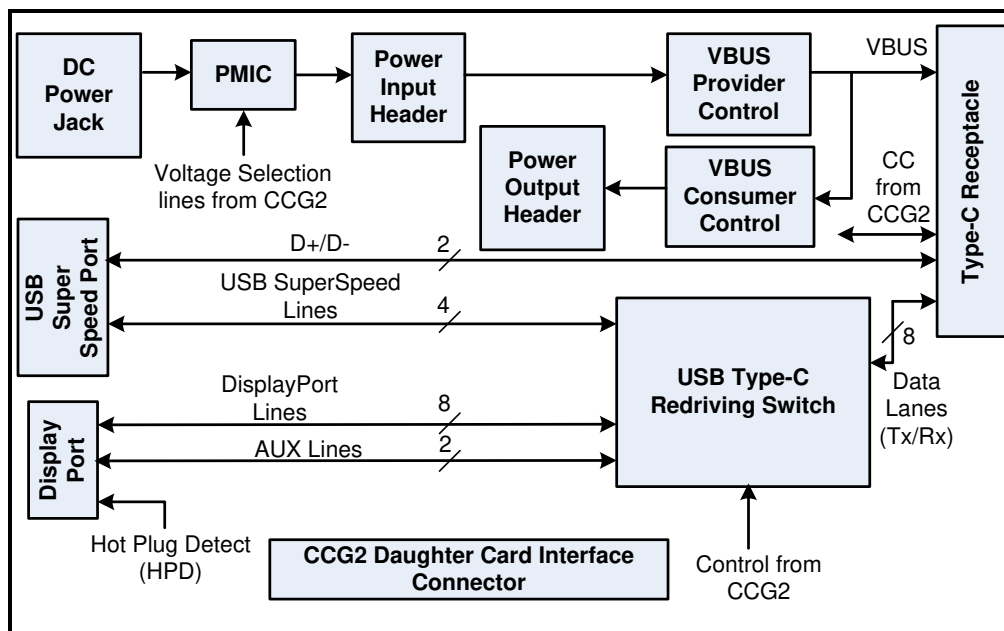
3.1 CCG EVK Base Board

The CCG EVK base board is an evaluation board equipped with a Type-C port, a SuperSpeed USB Type-B port, and a DisplayPort interface. It is primarily intended as a demonstration board for notebook designs that house a Type-C connector. The board also serves as a vehicle to evaluate the alternate modes for Type-C, using the DisplayPort demo as an example.

3.1.1 Block Diagram

The block diagram of the CCG EVK Base board is shown in [Figure 3-2](#). It has an on-board Type-C connector for the USB-PD interface and a daughter card interface connector to connect the CCG2 daughter card. It also includes a SuperSpeed USB Type-B port, and a Display Port connector to source video. The SuperSpeed USB signals and Display Port signals are connected to the Type-C connector through a USB Type-C Redriving Switch controlled by the CCG2 device. A DC power adapter provides input voltage to the onboard Power Management IC (PMIC). The output voltage from the PMIC can be selected using two voltage selection lines, controlled by the CCG2 device. This CCG EVK base board along with the CCG2 daughter card helps to convert any desktop or notebook PC with legacy USB ports to operate as a Type-C USB host.

Figure 3-2: CCG EVK Base Board Block Diagram



3.1.2 Features

[Table 3-1](#) shows the features of the CCG EVK base board.

Table 3-1: CCG EVK Base Board Features

Feature	Description
Power	The 24V input provided to the hardware is converted into the voltage to be provided on the Type-C port using a PMIC. The output voltage of the PMIC is controlled by CCG2. Power can also be consumed from Type-C connector for dead battery functionality. Note: The DC power adapter provided with the kit can support only up to 2.7A (at 24 V). This kit will not work with 5V DC power adapters.
CCG2 Daughter Card Interface Connector	Provides interface to connect the CCG2 daughter card to the CCG EVK base board
Type-C Plug orientation, Detection and Alternate modes	I ² C interface between the CCG2 device and the USB Type-C Redriving Switch to select between 'SuperSpeed USB and 2-lane DisplayPort or '4-lane DisplayPort' combinations Hot Plug Detect (HPD) for Display Port Alternate Mode operation

3.1.3 Connectors and Jumper Settings

Figure 3-3 shows the CCG EVK base board connectors and default settings of the jumpers. Table 3-2 contains the detailed description of the connectors and jumper settings.

Figure 3-3: CCG EVK Base Board Connectors

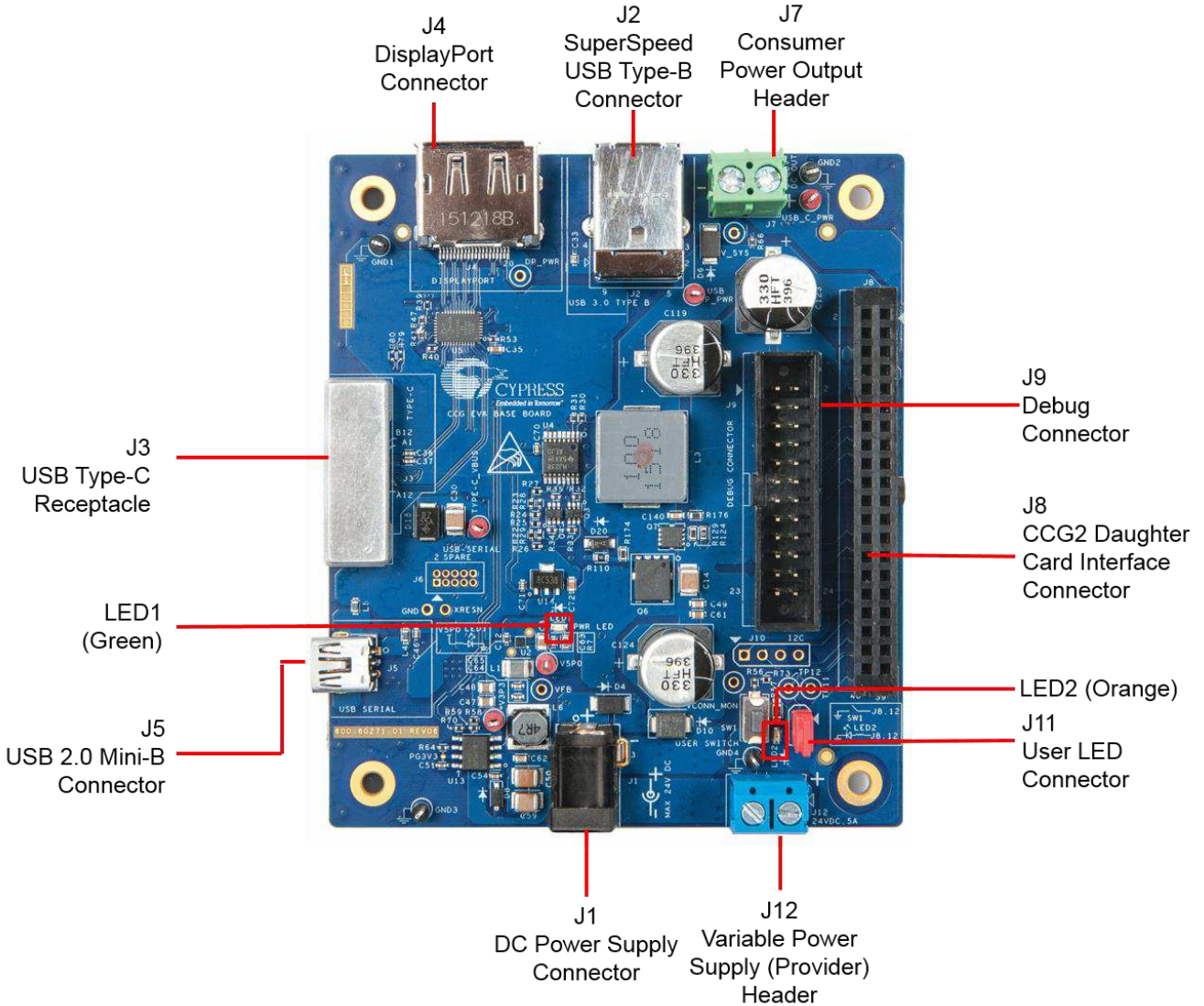


Table 3-2: CCG EVK Base Board Connector/Jumper Description

Connector/Jumper	Description	Default
J1	24V DC power jack to connect the DC power adapter to the CCG EVK base board	NA
J2	SuperSpeed USB Type-B connector (receptacle)	NA
J3	USB Type-C Connector (receptacle)	NA
J4	DisplayPort Connector	NA
J5	USB 2.0 Mini-B Connector (receptacle)	NA

Connector/Jumper	Description	Default
J6	USB Serial Debug Header	This connector is not populated
J7	Header for voltage measurement when CCG2 acts as a power consumer or power output header	NA
J8	CY4521 CCG2 Daughter Card Interface Connector	
	Pin 1,2: Regulated input power from 24-VDC terminal (J12) of CCG EVK Base Board (USB_P_PWR)	
	Pin 3,4: Power from VBUS of Type-C Connector (Type-C_VBUS)	
	Pin 5,6: Regulated output power to 20-Vdc terminal (J7) from USB_C_PWR pin of CCG2 daughter card	
	Pin 7: GND	Pin 8: GND
	Pin 9: I2C_SCL	Pin 10: VBUS_DISCHRG
	Pin 11: I2C_SDA	Pin 12: CCGx SWDIO
	Pin 13: Over Current Protection Pin	Pin 14: CCGx SWD_CLK
	Pin 15: AC_Adapter_Detect	Pin 16: CCGx XRES
	Pin 17: VSEL2	Pin 18: I2C_ADDR0
	Pin 19: 5 V	Pin 20: VCONN Monitor
	Pin 21: CC1	Pin 22: CC2
	Pin 23: 3.3 V	Pin 24: VBUS_P_CTRL
	Pin 25: RXD	Pin 26: VBUS Monitor
	Pin 27: TXD	Pin 28: I2C_INT_EC
	Pin 29: MUX_DP_AUXN	Pin 30: VBUS_C_CTRL
	Pin 31: MUX_DP_AUXP	Pin 32: Over Voltage Protection Pin
	Pin 33: SBU2	Pin 34: I2C_SDA_EC
	Pin 35: SBU1	Pin 36: Hotplug Detect
	Pin 37: I2C_SCL_EC	Pin 38: TP12
Pin 39: VSEL1	Pin 40: TP11	
J9	Debug Connector	
	Pin 1,2: Power from VBUS of Type-C Connector (Type-C_VBUS)	
	Pin 3: CCGx SWDIO	Pin 4: CCGx XRES
	Pin 5: CCGx CC1	Pin 6: CCGx CC2
	Pin 7: I2C_SCL_EC	Pin 8: I2C_SDA_EC
	Pin 9: I2C_INT_EC	Pin 10: Hotplug Detect
	Pin 11: I2C_SCL	Pin 12: SW1/I2C_SDA
	Pin 13: SW2	Pin 14: Over Current Protection Pin
	Pin 15: CCGx SWD_CLK	Pin 16: Over Voltage Protection Pin
	Pin 17: VSEL1	Pin 18: VSEL2
	Pin 19: VBUS_P_CTRL	Pin 20: VBUS_DISCHRG
	Pin 21: VBUS_Monitor GPIO	Pin 22: VBUS_C_CTRL
	Pin 23: GND	Pin 24: GND
	J10	I2C Connector
Pin 1: I2C_SDA_EC		Pin 2: I2C_SCL_EC
Pin 3: I2C_INT_EC		Pin 4: GND
J11	User LED jumper for connecting LED to GPIO Pin 1: SWD_IO Pin 2: LED	Shorted
J12	Header for voltage measurement when CCG2 acts as a power provider or power input header.	NA

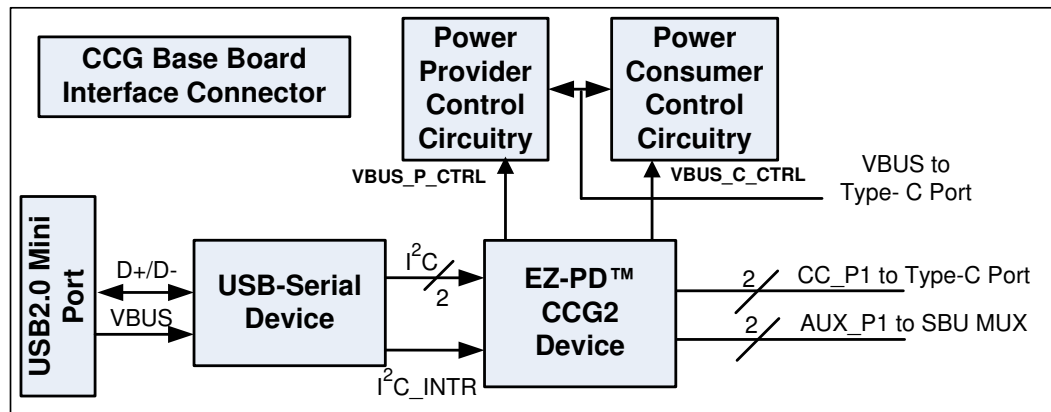
3.2 CY4521 CCG2 Daughter Card

The CCG2 daughter card is equipped with the CYPD2122-24LQXIT of the CCG2 device family and a CY7C65215-32LTXI USB-Serial Bridge Controller to provide a USB interface for debugging and programming. This CCG2 daughter card, when assembled with the CCG EVK base board supports Type-C host applications such as notebooks and tablets.

3.2.1 Block Diagram

Figure 3-4 shows the CCG2 daughter card block diagram.

Figure 3-4 CCG2 Daughter Card Block Diagram



3.2.2 Features

Table 3-3 lists the features of the CCG2 daughter card.

Table 3-3: CCG2 Daughter Card Features

Feature	Description
CCG2 part number	CYPD2122-24LQXIT
CCG2 package	24-pin QFN
USB PD/ Type-C	Ability to support DRP, DFP, and UFP
	Type-C VBUS current setting via a jumper that selects one of the three Rp values. These three values correspond to the three currents as defined in the Type-C specification.
	VBUS provider field-effect transistor (FET) control for cold socket
	VBUS consumer FET control
	VBUS discharge FET control
	Ability to present either Rd or Rp on CC line
	Dead battery support
OVP and OCP	VCONN or VBUS over-current protection
	VBUS over-voltage protection
Plug orientation, Detection and Alternate modes	Five MUX-select pins to select between SuperSpeed USB and 2-lane or 4-lane DisplayPort
	Hot Plug Detect (HPD) for DisplayPort Alternate Mode of operation
USB 2.0 Type-B Mini	USB 2.0 Mini-B receptacle connected to USB-to-Serial device
I²C interface	I²C pins and interrupt output pin for connecting to an Embedded Controller (EC)
Programming	SWD pins to debug/program CCG2 using Cypress MiniProg3

Feature	Description
Power	5 V from USB 2.0 Mini B (Connector J5 of CY4521 CCG2 daughter card)
	5 V from MiniProg3 (Connector J1 of CY4521 CCG2 daughter card)
	3.3 V/ 5 V power supply from the CCG EVK base board

3.2.3 Connectors and Jumper Settings

Figure 3-5 shows the CCG2 daughter card connectors and default settings of the jumpers. Table 3-4 contains the detailed description of the connectors and jumper settings.

Figure 3-5: CCG2 Daughter Card Connectors/Jumper Settings

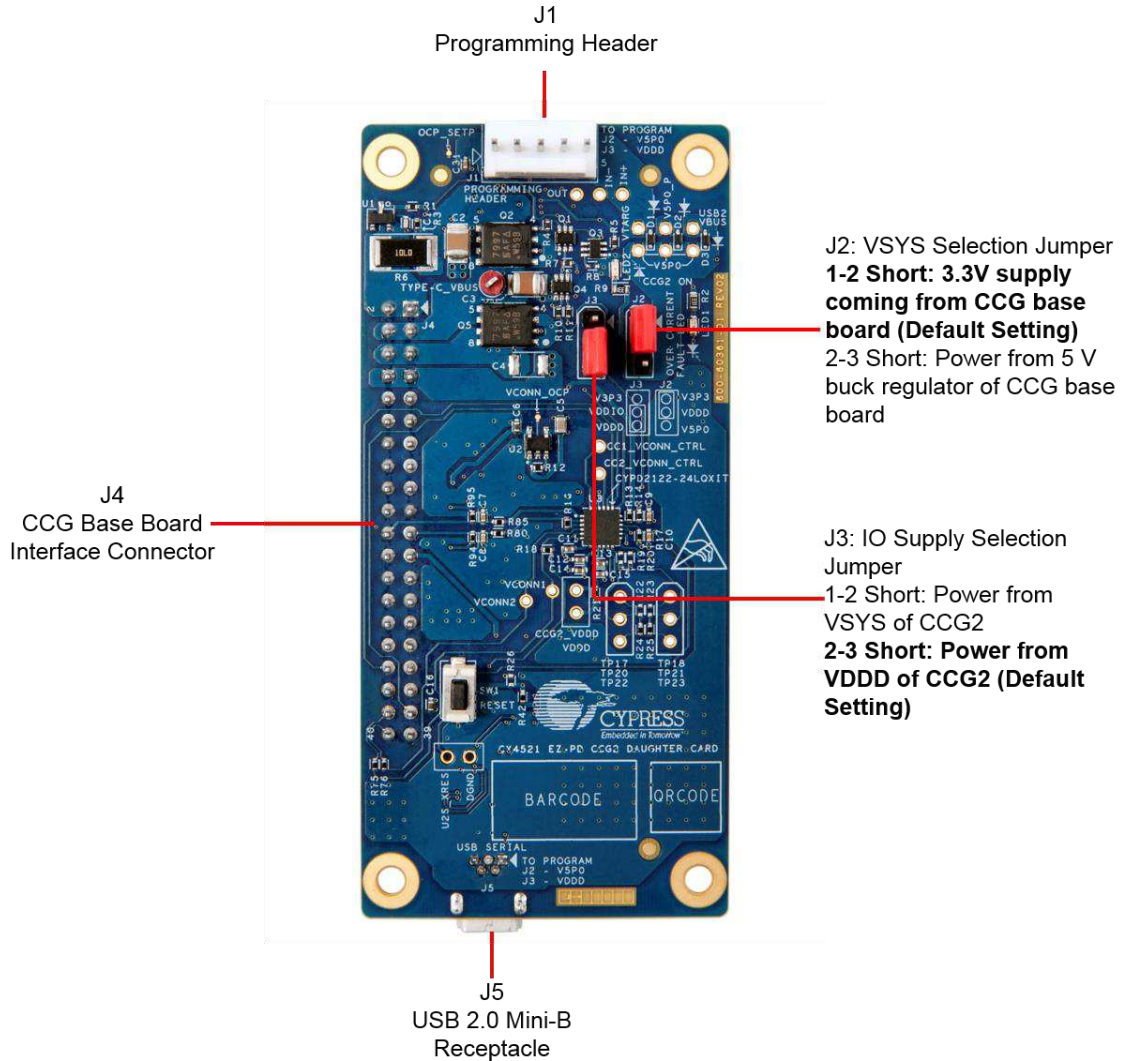


Table 3-4: CCG2 Daughter Card Connector/Jumper Description

Connector/Jumper	Description	Default
J1	Programming header Pin 1: VTARG Pin 2: GND Pin3: CCG2_XRES Pin4: CCG2_SWD_CLK Pin5: CCG2_SWD_IO	NA
J2	VSYS selection jumper: 1 and 2 short: Select the power from 3.3-V supply coming from the CCG EVK base board 2 and 3 short: Select the power from 5-V buck regulator of the CCG EVK base board	1 and 2 short
J3	I/O supply selection jumper: 1 and 2 short: Select the power from VSYS of CCG2 device 2 and 3 short: Select the power from VDDD of CCG2 device	2 and 3 short
J4	CCG Base Board Interface Connector	
	Pin 1,2: Regulated input power from 24-VDC terminal (J12) of the CCG EVK Base Board (USB_P_PWR_P1)	
	Pin 3,4: Power from VBUS of Type-C Connector of the CCG EVK Base Board (TYPE-C_VBUS_P1)	
	Pin 5,6: Regulated output power to 20-VDC terminal (J7) of the CCG EVK Base Board (USB_C_PWR_P1)	
	Pin 7: GND	Pin 8: GND
	Pin 9: I2C_SCL	Pin 10: VBUS_DISCHRG_P1
	Pin 11: I2C_SDA	Pin 12: SWDIO
	Pin 13: USB Provider Power Sense Pin	Pin 14: SWD_CLK
	Pin 15: AC_Adapter_Detect	Pin 16: XRES
	Pin 17: VSEL2	Pin 18: UART2_RX
	Pin 19: 5 V	Pin 20: UART2_TX
	Pin 21: CC1	Pin 22: CC2
	Pin 23: 3.3 V	Pin 24: VBUS_P_CTRL0
	Pin 25: TXD	Pin 26: VCONN
	Pin 27: RXD	Pin 28: I2C_INT_EC
	Pin 29: DP_AUXN_P1	Pin 30: VBUS_C_CTRL0
	Pin 31: DP_AUXP_P1	Pin 32: GPIO/P2.4
	Pin 33: SBU2	Pin 34: I2C_SDA_EC
	Pin 35: SBU1	Pin 36: Hotplug Detect
	Pin 37: I2C_SCL_EC	Pin 38: DPlus
Pin 39: VSEL1	Pin 40: DMinus	
J5	USB 2.0 Mini-B connector (receptacle) Connected to USB-Serial device and used for programming CCG2 device	NA

3.3 Powering the CY4521 EZ-PD CCG2 EVK Setup

The CY4521 EZ-PD CCG2 EVK setup can be powered by connecting the 24-V DC power adapter to connector J1 of the CCG EVK base board. LED1 on the CCG EVK base board and LED2 on CCG2 daughter card board will glow green and LED2 on the CCG EVK base board will blink orange continuously, to indicate a successful power connection. The CY4521 EZ-PD CCG2 EVK setup can also be powered by connecting 24-V DC from a variable power supply to the terminals of connector J12 of the CCG EVK base board.

Note: Check the jumper positions before you power the board. See [Figure 3-3](#) and [Figure 3-5](#) for default jumper settings of the CCG EVK base board and CCG2 daughter card.

4. Programming the EZ-PD™ CCG2 Device on the CY4521



The CCG2 device in the CY4521 EZ-PD CCG2 EVK is pre-programmed with the latest cyacd firmware binary image at the time of manufacturing. However, a newer cyacd file may be available on the [CY4521 EZ-PD CCG2 EVK webpage](#) and in the CY4521 EZ-PD CCG2 EVK installer. The firmware version of the onboard CCG2 device can be verified by using the [EZ-PD Configuration Utility](#) as shown in [Figure 4-4](#). If the onboard CCG2 device's firmware version does not match with the latest version on the [CY4521 EZ-PD CCG2 EVK webpage](#), follow the steps in this chapter to reprogram the CCG2 device. Device configuration parameters (such as vendor ID, Power Data Objects (PDOs), and DisplayPort Mode) can be updated using the [EZ-PD Configuration Utility](#). Refer to the [EZ-PD Configuration Utility User Manual](#) for more details.

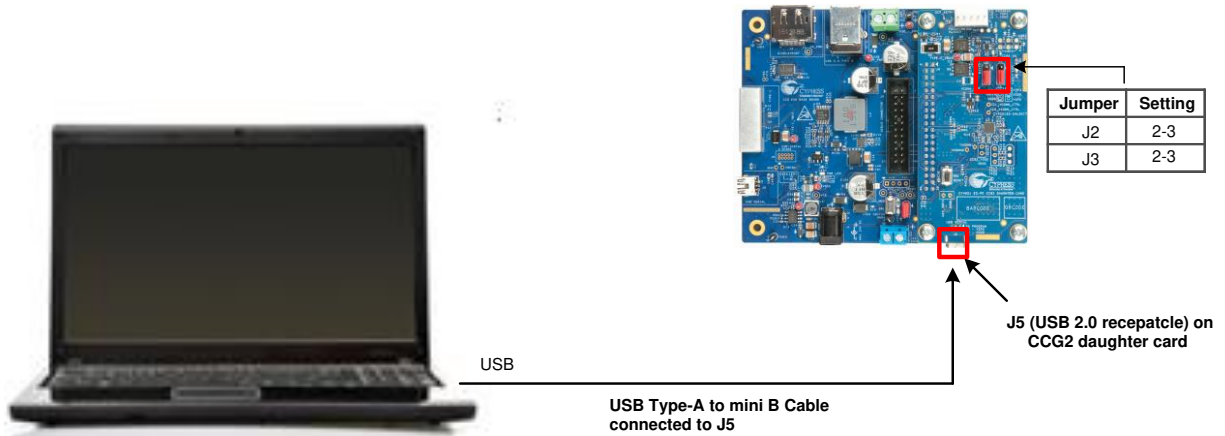
The [CCGx Software Development Kit \(SDK\)](#) (version 3.0 or later) along with PSoC® Creator™ (version 3.3 SP2 or later) allows users to harness the capabilities of Cypress's CCG families of Type-C Controllers. It provides a Type-C and USB-PD specification compliant firmware stack along with the necessary drivers and software interfaces required to implement applications using CCG controllers. The CCGx SDK also includes reference projects implementing standard Type-C applications and documentation that guides users in customizing existing applications, or creating new ones. For more information on the CCGx SDK, refer to the [CCGx SDK User Guide](#). Click [here](#) to go to the CCGx SDK webpage and download and install the latest version.

4.1 Programming the CCG2 Device on the CCG2 Daughter Card

CCG2 firmware build design uses a two .cyacd file approach. The first .cyacd file is the firmware image and the second .cyacd file is the configuration data file. The EZ-PD Configuration Utility is a Windows Application, which can be used to configure and program the CCG2 device on the CCG2 daughter card. The steps to update the firmware running on the CCG2 device of the CCG2 daughter card are as follows:

1. Download and install the latest kit software setup file "CY4521 EZ-PD CCG2 EVK Complete Setup" from the kit's website: www.cypress.com/CY4521. This installs the EZ-PD Configuration Utility as well.
2. Ensure that the voltage selection jumper (J2) is set to 5 V (pins 2 and 3 of jumper J2 on the CCG2 daughter card are shorted). Note that this is NOT the default setting for this jumper. Also, ensure that the I/O supply selection jumper (J3) is set to VDDD of the CCG2 device (pins 2 and 3 of jumper J3 on the CCG2 daughter card are shorted).
3. Connect the USB Type-A to Mini-B cable from the host PC to the CCG2 daughter card's J5 connector as shown in [Figure 4-1](#).

Figure 4-1: Programming CCG2 Device on CY4521 EZ-PD CCG2 EVK



4. Launch the EZ-PD Configuration Utility as shown in Figure 4-2. After the installation, the EZ-PD Configuration Utility is available at the following location by default:

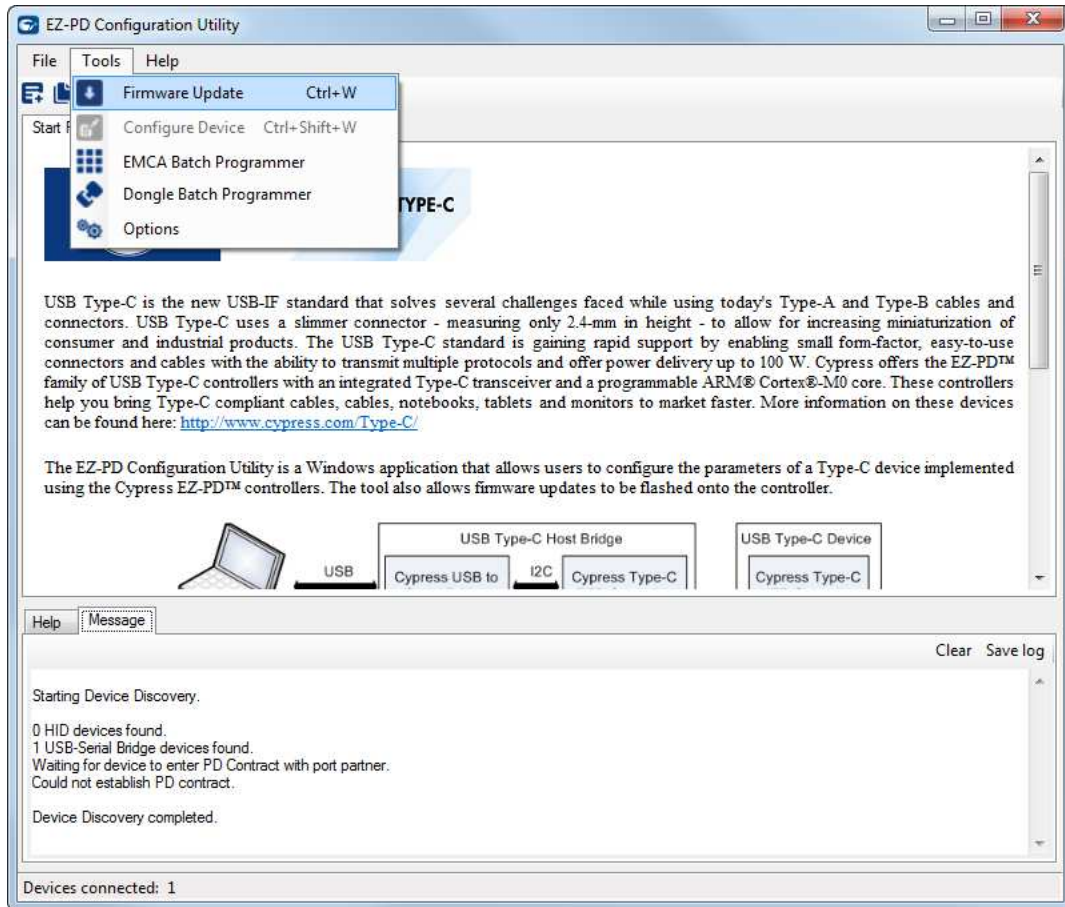
Windows > Start > All Programs > Cypress > EZ-PD Configuration Utility > EZ-PD Configuration Utility

Figure 4-2: EZ-PD Configuration Utility



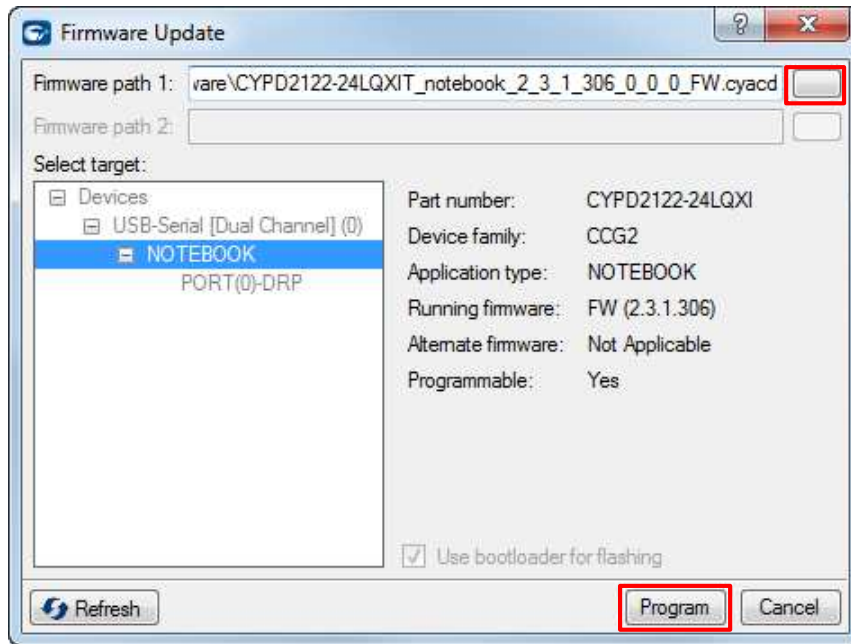
5. Select **Tools > Firmware Update** to update the firmware of the CCG2 device as shown in [Figure 4-3](#). Refer to the [EZ-PD Configuration Utility User Manual](#) for more details. That document can also be opened by clicking **Help > User Manual** in the EZ-PD Configuration Utility.

Figure 4-3: Upgrading CCG2 Firmware



6. Download the latest firmware images from the [CY4521 EZ-PD CCG2 EVK](#) webpage. The CCG2 device firmware is provided in `.cyacd` format. Sample firmware binary for each application and standard part numbers are provided on the [CY4521 EZ-PD CCG2 EVK](#) webpage. The firmware image is also available at the following location after the CY4521 EZ-PD CCG2 EVK installation: `<Install_Directory>\CY4521 EZ-PD CCG2 EVK\1.0\Firmware`
7. Select **NOTEBOOK** from the **Select target** list shown in [Figure 4-4](#). Click the button located in the **Firmware path 1** widget and select the FW image (`CYPD2122-24LQXIT_notebook_x_x_x_xxx*_0_0_0_FW.cyacd`). **Note** *: `x_x_x_x_xxx` refers to the firmware version.

Figure 4-4: Updating Firmware Using EZ-PD Configuration Utility

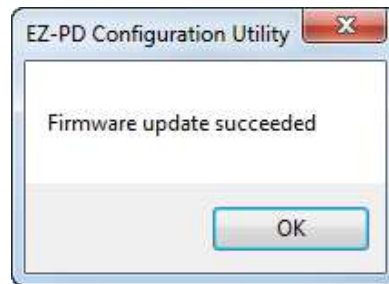


8. Upon clicking **Program**, the firmware update process is initiated over I²C. The status bar at the bottom of the utility will show the progress; the Messages window will indicate the firmware update process.

Warning: Do not disconnect the EVK from the PC while the firmware update is in progress.

9. Upon successful completion of the firmware update process, a window with the message “Firmware update succeeded” is displayed as shown in Figure 4-5. Click **OK**.

Figure 4-5: Firmware Update Process Complete



10. The above steps update the firmware image of the CCG2 device. In order to update the configuration data of the CCG2 device, select **File > Read from Device** as shown in Figure 4-6 to read the existing configuration data. Select **Notebook** and click on **Read** button.