PSoC Creator IDE

Welcome back to Cypress Academy. This is PSoC 6 101. Before you get started with this video you should download and install the latest version of PSoC Creator from the Cypress website. For these videos I will use PSoC Creator 4.2 but we’ll keep the projects up to date on the internet so you'll be able to download projects that are compatible with the most recent version of PSoC Creator.

PSoC Creator is our IDE for developing PSoC MCU based solutions. While we support developing PSoC 6 solutions in other IDEs including IAR, Keil, and Eclipse, I’m going to start with the PSoC Creator environment for this training class and in later ones I'll show you how you can use those other IDEs.

In this lesson, I will walk you through the PSoC Creator development IDE and I'll show you how to get started, find example projects, I'll teach you how to interact and use components in our library, and finally how to build and debug your application.

Let’s start by creating a new PSoC 6 project. First, I’ll start PSoC Creator.

When you start up the screen, you’ll see the start page is right there in the middle. This start page will give you live links to the PSoC creator blog on Cypress.com. To the left you’ll see hot links, and these hot links will help you create new projects, learn about the tool, plus there will be other links to your most recent projects.

We’ll start off this process by creating a new PSoC 6 project by doing a File->New-> Project.

I’ll start by creating a design project that targets the PSoC 6, specifically the PSoC 63 family. Then you'll click Next, and you'll be able to create your new project with a code example, or a pre-populated schematic that already has a bunch of components that are preloaded. or finally with just a blank schematic.

The next screen will give me the choice in selecting an external IDE. I’m not using any of these, so I’ll just press Next.

A PSoC Creator workspace is a container that can hold multiple PSoC Creator projects. I’m going to create a new workspace for this entire series of videos that will be called "PSoC 6\_101" that you'll use to hold all of the projects that you build to go with this set of videos. I’ll pick my project name. I think we should start with "Hello World PWM".

In the middle of the screen you’ll see a blank schematic. This is where you put your imagination; you put all of the hopes and dreams of your IoT project and they can be realized by pulling components out of the catalog and adding them to the schematic.

Components in the component catalog represent firmware and peripherals that are inside of our chip. You can use them to build your IoT device. They’re categorized into folders by their type. For instance, the analog components, or the digital components, or the CapSense component, etc. You should take a few minutes and surf through the list of components and see all the amazing things that you can put in your project.

Each of the components in our library are fully characterized and are guaranteed to meet their datasheet specs. Each of them also has a driver library that allows you to easily integrate them into your firmware project. They also have complete documentation of all of the APIs that you need to interact with them.

To use them, you just click and drag them on to your screen. For example, this is how you would put an ADC into your design. I’ll be showing you more about each of the peripherals in the upcoming videos.

On the left-hand side of the screen is the workspace explorer. The workspace explorer is the gateway to all of the files in your project. Each project will have a folder in the workspace explorer and inside of each folder you’ll find the schematic, which you can double click to open. You'll also find the design wide resources folder, which contains items that you can double click to bring up the special editor for them. This includes doing things like setting the pins or configuring the interrupts.

The next thing I think is really super cool. There’s a folder for each one of the ARM cores in the PSoC 6. Each of the cores share their component resources in a design, but each have their own independent program. If you double-click the main\_cm0p.c, that will open the main application for the Cortex M0+ core. If you double-click the main\_cm4.c, that will open up the main application for the Cortex-M4.

The next thing you should do in the process is click ‘Generate Application’. When you do this, it creates a folder called Generated\_Source that contains all of the drivers and all of the other low-level firmware needed for your project based on the device you selected, the components you put in the schematic, and the other places where you setup system resources. Also, it will copy template files into your projects like the startup code for the two cores, the linker files so you can build with custom linker settings, and finally, the configuration files for the inter-process communication blocks.

One of the best parts about this entire thing is that we have an ecosystem of help resources that you will find under – guess where - the Help menu.

In the next video, I will show you how to build and program your first project, the infamous “Hello World” blinking LED example, but this time I'm going to put a special twist in.

As always, you can post your comments and questions in the PSoC 6 developer community on Cypress.com. Or you are welcome to email me at alan\_hawse@cypress.com or tweet me @askioexpert. Thank you!