

UART

My name is Alan Hawse and this is PSoC 101. Now I am going to show you another use of the communication blocks; a UART. For this lesson you will need to install a terminal emulator program. I recommend TeraTerm or PuTTY both of which can be downloaded to the web for free. You can find the links on cypress.com/psoc101

This time create a new project from scratch rather than copying an old project. Find and add the UART to the schematic. Make sure you choose the SCB mode component. The other one that you'll see in the catalog uses UDBs – our universal digital blocks – for the implementation instead of the dedicated hardware. There is nothing wrong with using the UDB version except that UDBs are precious resources. They are really powerful and flexible blocks and it makes sense to use the SCBs for what they were intended and save the UDBs for more critical uses.

The default UART configuration is 115200 baud, 8 data bits, no parity and 1 stop bit. Rename it to UART to keep the API names short. In the DWR pick the appropriate pins to connect to the kitprog bridge on the Pioneer kit. If you are using the 042 kit, like me, then there is no direct connection from the PSoC 4 device to the kitprog bridge device. You need to wire the UART to the kitprog bridge. The cypress.com/psoc101 web page gives you the details on this. Once you are done, it should look like this.

Now generate the application and write a little firmware. First you start the component, as usual. Then you call the `UartPutString` function with a string argument. Program the kit and launch your terminal emulator. Make sure the terminal program is connected to the correct serial port and has matching UART parameters. When you reset the target it prints out the string in the terminal program.

Once you have this working verify that you can receive characters as well. Use the `UartGetChar` API – you'll find it in the datasheet – to read lower case characters typed in the terminal and then write them back capitalized. Just ignore typed characters that are not lower case to keep the application simple.

As always you are welcome to email me at alan_hawse@cypress.com