

P(eek)SoC *(event evaluation kit)*

Cute names aside, when working with the Programmable System on a Chip (PSoC), in either assembly or C, one might wish to have the ability to display information about what is going on inside the chip during operation. The recent release of the PSoC Designer version 3.1 includes an IrDA transceiver module, providing a valuable link for such a purpose. With any standard Palm-based handheld device, here is a way to receive data – debug information, too – from the PSoC.

With as little as two digital blocks (for 4800 baud IrDA data rate), one can have an easy-to-use wireless link with just three additional external components. This leaves six digital blocks, four continuous time blocks, and eight switched-capacitor blocks with which to develop a full project. We have used this “event evaluation kit” as a basic template from which to start on many projects.

This example device uses an infrared LED to send bursts of data containing the readings of the four multiplexed analog input signals, which is then digitized by the eight-bit delta-sigma ADC, sent via the IrDA, and then decoded by the included Microsoft Visual Basic routines, specifically written with the Appforge add-on to program to PalmOS handhelds, and displayed on any Palm. We chose 19.2kbps as the IrDA transfer rate by adding a counter to properly divide the clock. We chose to use a gain of 1.000 and common ground for all our measurements. We also added a serial number feature so that multiple devices may be read by one Palm simply by pointing the

IrDA port at them – with an indicator of which unit you are looking at. There is also a flashing on the Palm to indicate there is valid data being received.

The board includes one PSoC standard programming RJ45 connector, so easy reprogramming of the chip is possible at any time. A fiber optic connector has been included for free-air or fiber communications with Palm via its built-in IrDA port.

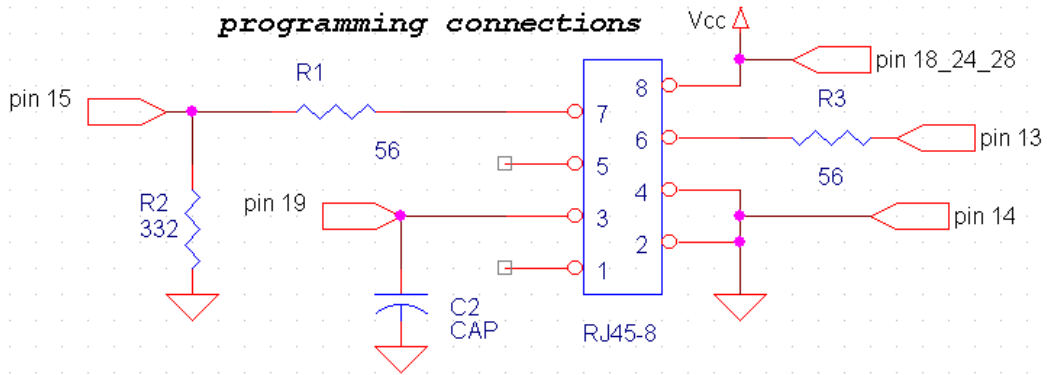
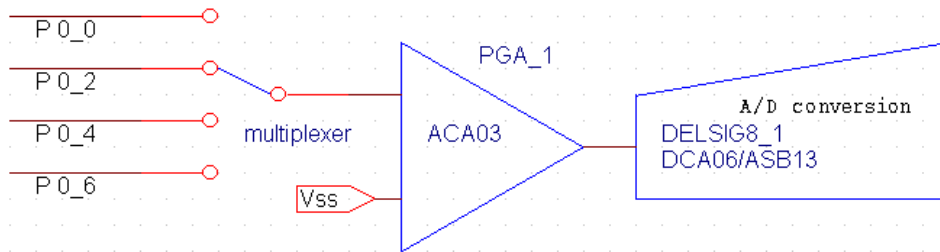
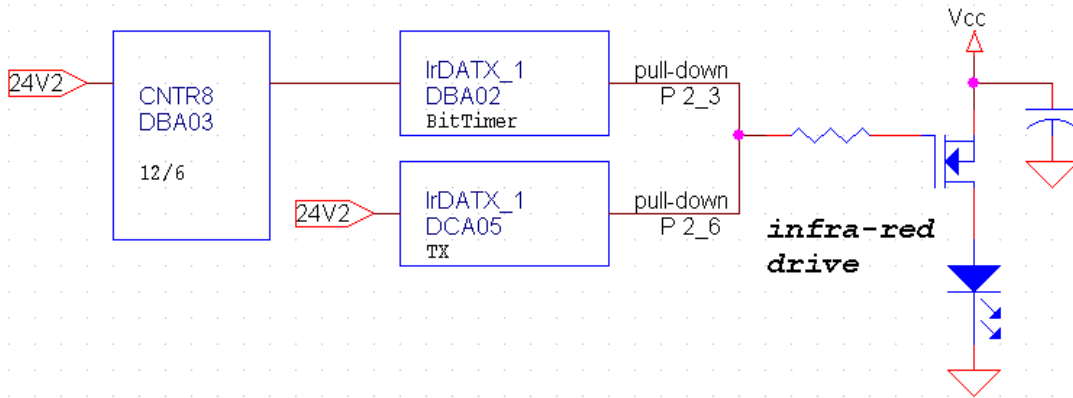
In keeping with the “Project-In-A-Weekend” mentality, we did this all this past weekend – the final hour, as it were, before the contest entry deadline. Which, coincidentally, happened to be the same weekend I chose to begin installation of a turbocharger in my Saturn. Granted, it is not installed just yet, but the event evaluation kit was completed in its entirety as you see it here.

Photo of P-cek-SoC



Please excuse the quality of this digital photo, as our current digital camera is not very capable – at **all**. ☺

Hardware Flowchart



Schematic

