

Google Summer of Code 2014
Project with BeagleBoard.org

BeagleLogic

A logic analyzer with the BeagleBone Black

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BeagleLogic is a logic analyzer designed as a learning tool using the PRU on board the TI AM335x SoCs used on the BeagleBone and the BeagleBone Black for sampling the logic signals, and the ARM core for post-processing.

sigrok

sigrok is an integrated library for signal analysis. It supports a wide variety of multimeters, oscilloscopes and logic analyzers

Key components -

- libsigrok : Core library, including hardware drivers for data capture and processing
- libsigrokdecode: Python-scripted stackable protocol decoding for digital signals. Currently it has **35 decoders** including I²C, I²S, SPI, 1Wire, JTAG, UART, IR (NEC), DS1307



Components

1. PRU Firmware for data acquisition
(end of Week 2)
2. libsigrok based back-end for processing
(end of Week 4)
3. A Server which uses the libsigrok components developed in (2).
(end of Week 5)
4. A Web-based client for the logic analyzer that can be accessed just like the Bone101 pages or the Cloud9 IDE
(end of Week 10)

PRU Firmware

Assembly + C Bindings with libsigrok

Responsible for data capture

Maximum of 16pins (Starting with 8)

50 MHz sample rate

Data streamed to the DRAM

To be finalized by the end of Week 2.

Back-end / Server

In C and node.js

Starting point: sigrok-cli

Capture data from the PRU using libsigrok bindings, and then serve it to the client (a web-based client for now)

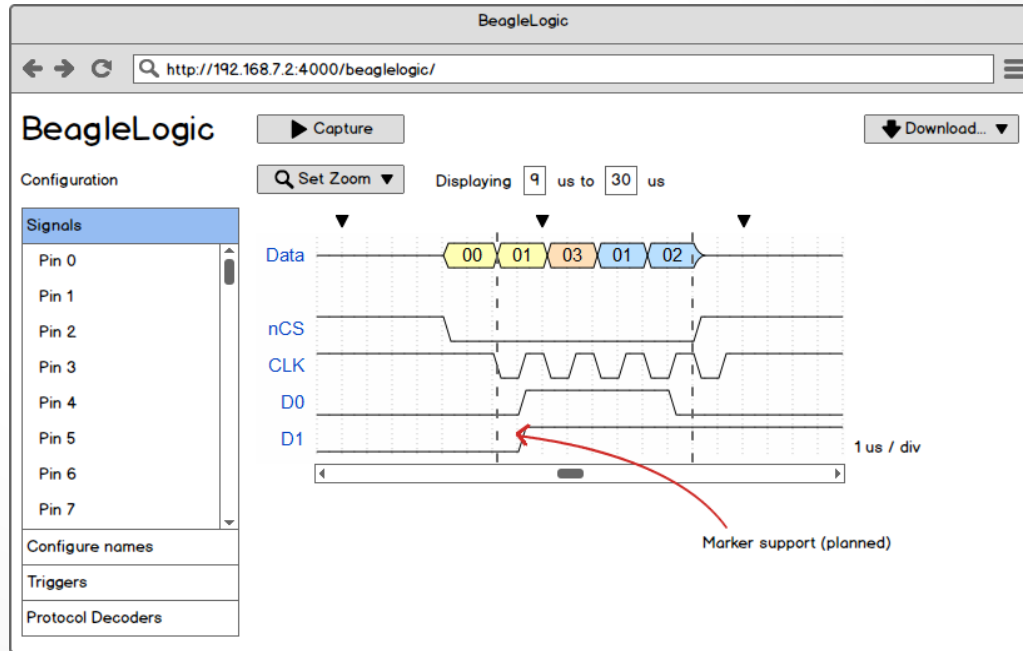
Most people will not be using a display and a desktop with their BeagleBone, so there will be a socket-based interface for command and data.

Front-end

Web-based client for the Logic Analyzer

WaveDrom library to render the captured data into your web browser

(till Week 10)



That's it!

For more information regarding the project, visit

Blog:

www.beaglelogic.net

www.theembeddedkitchen.net/gsoc2014/

Code @GitHub:

www.github.com/abhishek-kakkar/BeagleLogic/

IRC (freenode): #beagle-gsoc