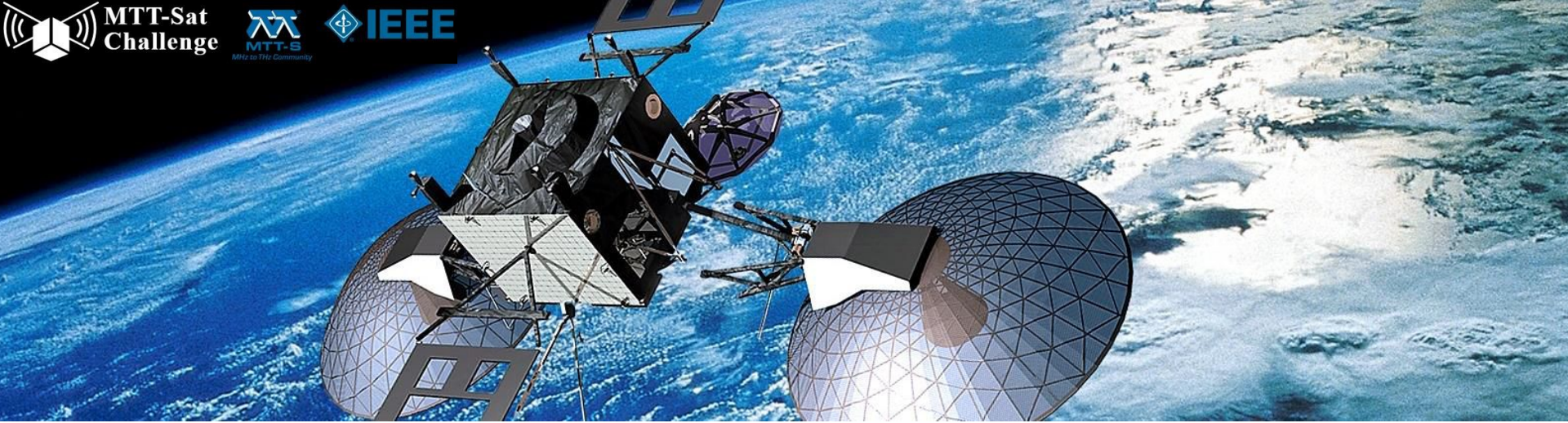

Team 303 - Software Defined Radio

Sponsor/Advisor: Pete Stenger

Reviewers: Bing Kwan, Jinyeong Moon

Team Members: Kira Bronstein, Simon Charry, Christian Pollock, Jaryd Walton, Evan Woodard

Goal of the Project

- Design and test software radio transmitter
- Reprogrammable
- Based on common, off-the-shelf components
- High fidelity
- Low cost

Preliminary Detailed Design (Overall)

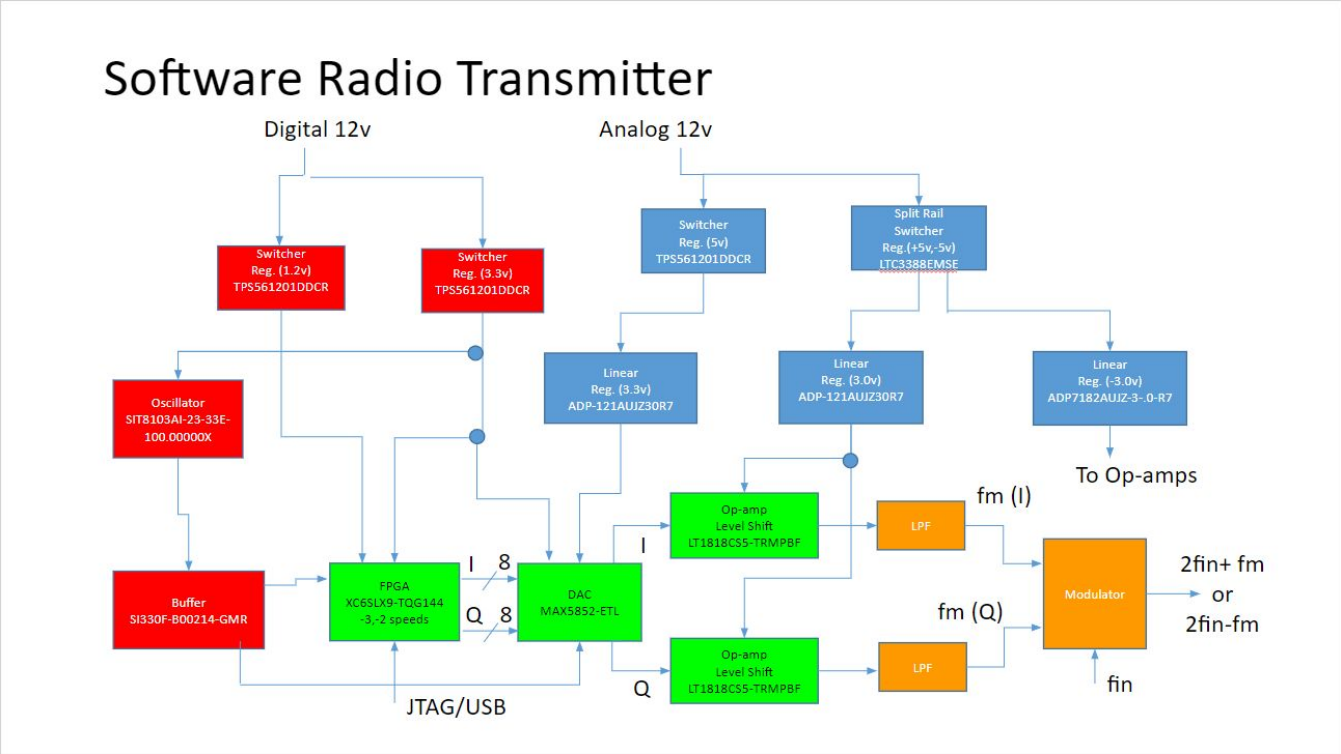

Figure 1: Block Diagram of Software Radio Transmitter

Last Semester's Accomplishments and Progress

- Familiarized ourselves with the software needed for the project (KiCAD, LTSpice, Advanced Design System (ADS))
- Created symbols and footprints which will be used in KiCAD for schematics and PCB layouts, respectively.
- Created schematics for the modulator, Split-Rail Switcher, DAC, FPGA, Linear Regulators, and Op-Amp.

This Semester’s Goals and Progress

- Finalize schematics/layouts in progress (1)
- Generate Gerber (.gbr) files for the completed schematics (2)
- Order the components needed for the completed schematics (3)
- Send the .gbr files and components to the PCB assembly/manufacturing company (4)
- Create project website

Preliminary Detailed Design (Regulators)

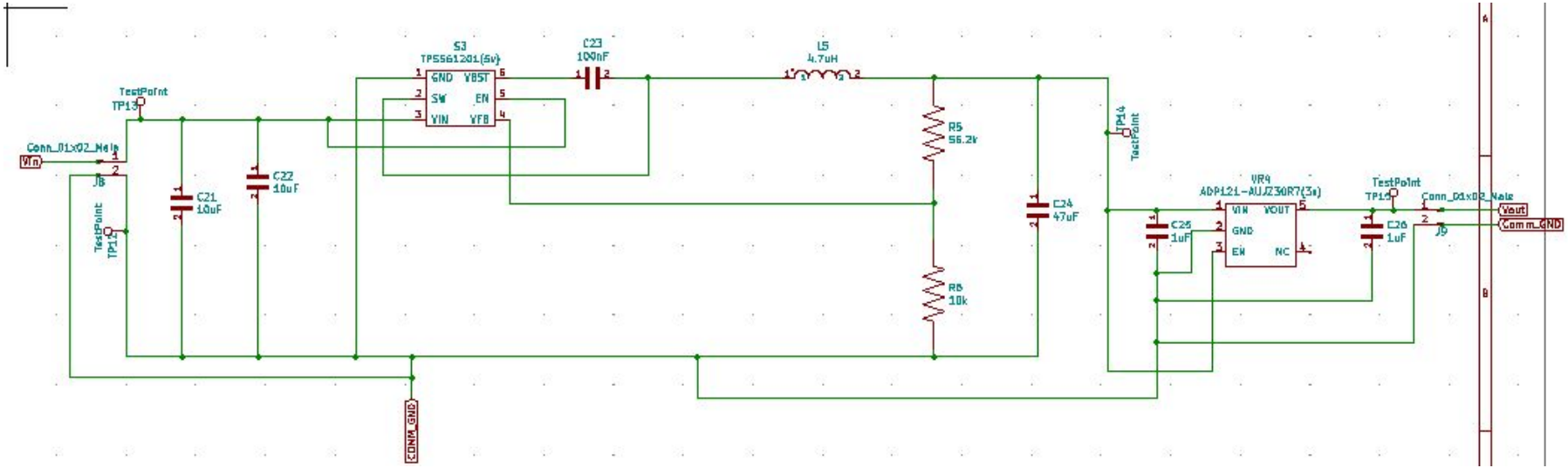

Figure 2: Switch and Linear Regulator

Progress Pictures

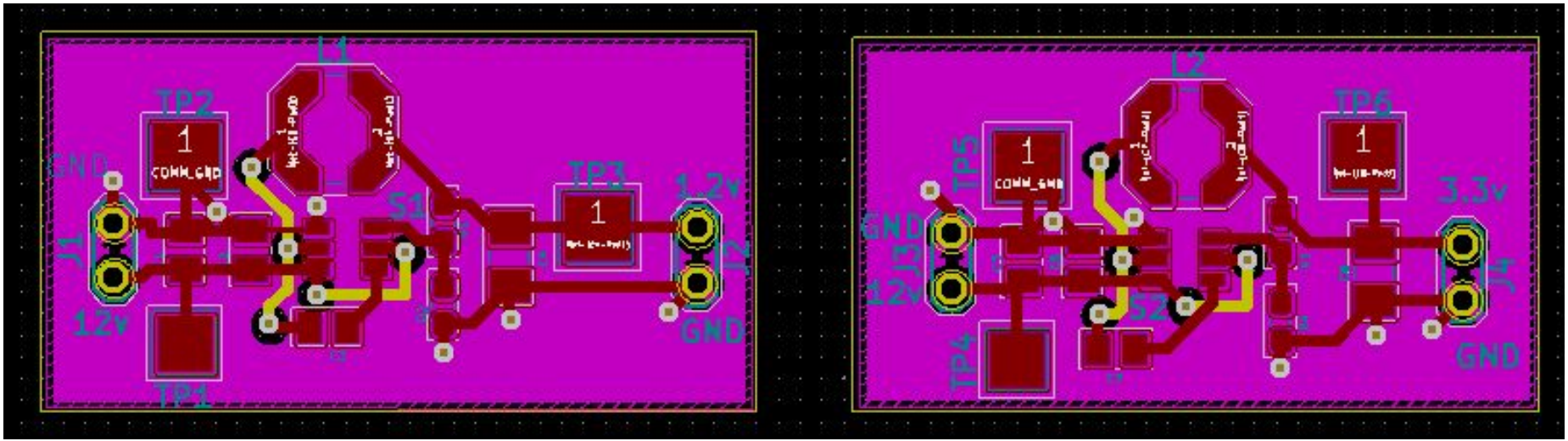

Figure 4: PCB Layout for Switcher Regulators

Progress Pictures

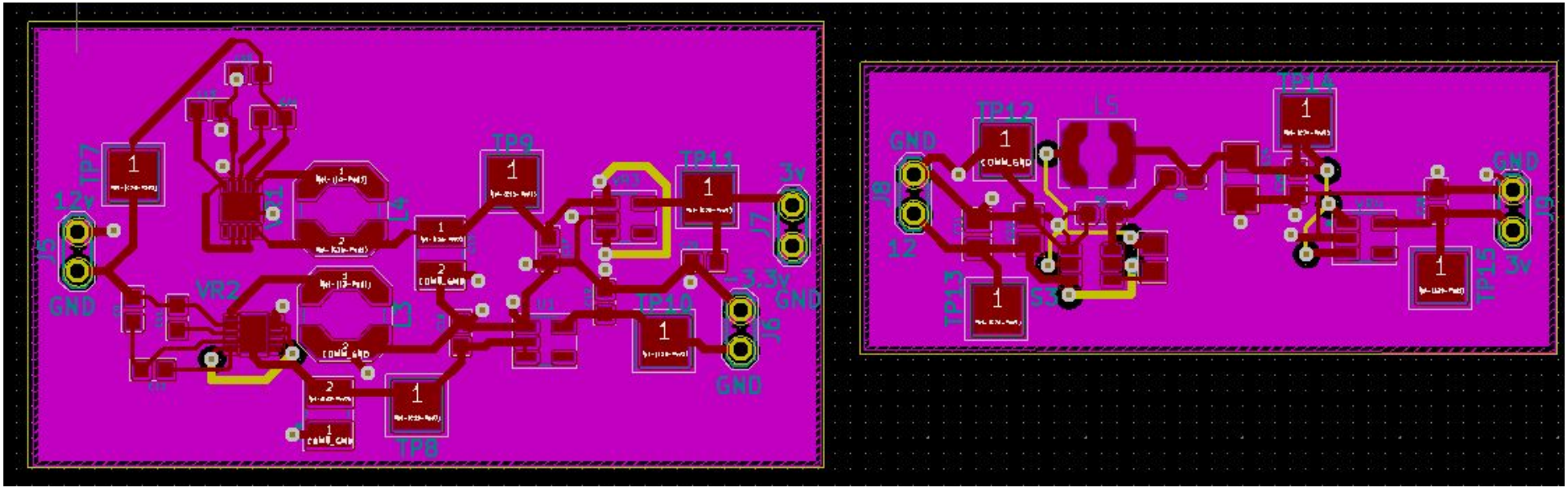

Figure 5: PCB Layout For Split Rail Switcher Regulator and Switcher with Linear Regulators

Preliminary Detailed Design (FPGA and DAC)

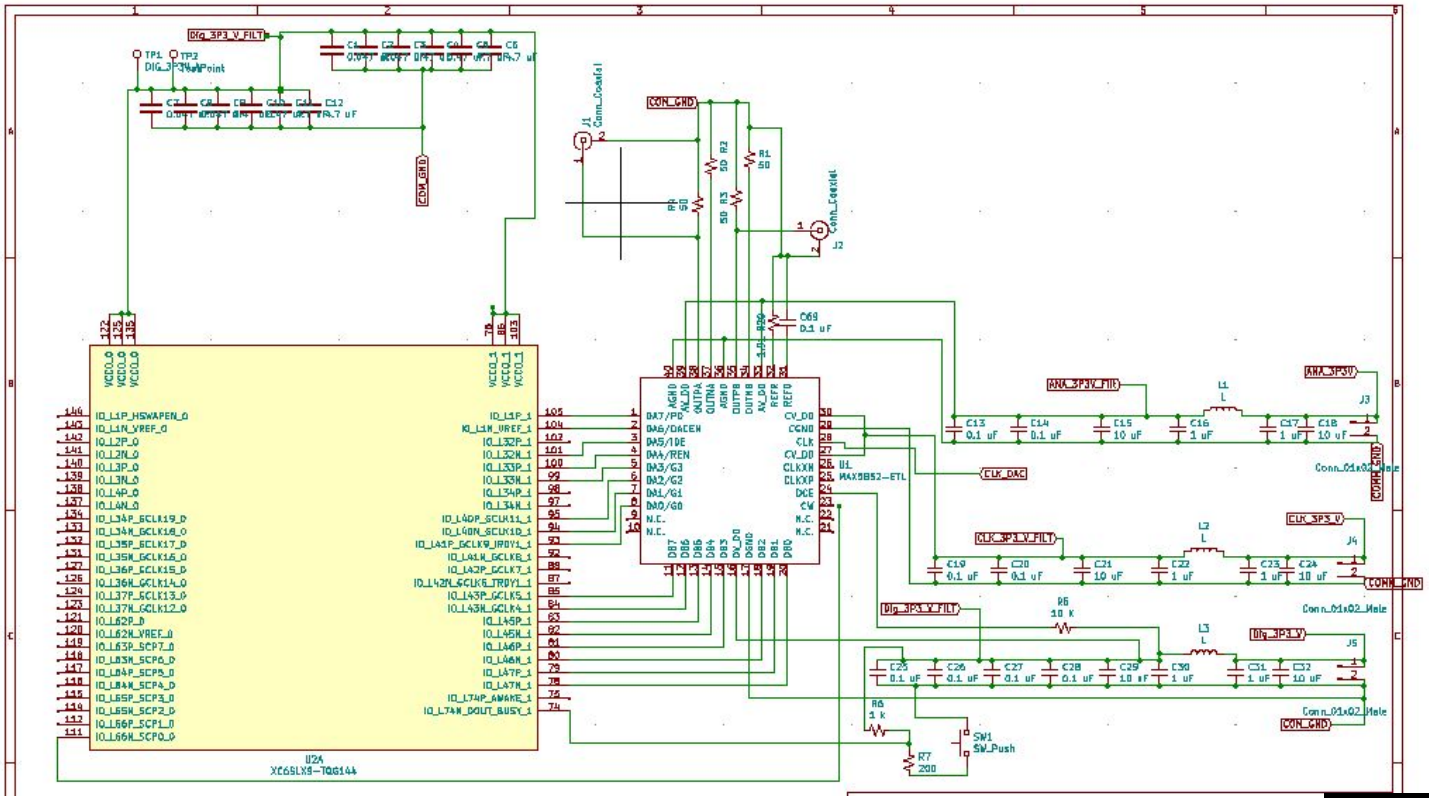

Figure 3: FPGA & DAC schematic

Progress Pictures (FPGA, DAC, Clock, & Buffer)

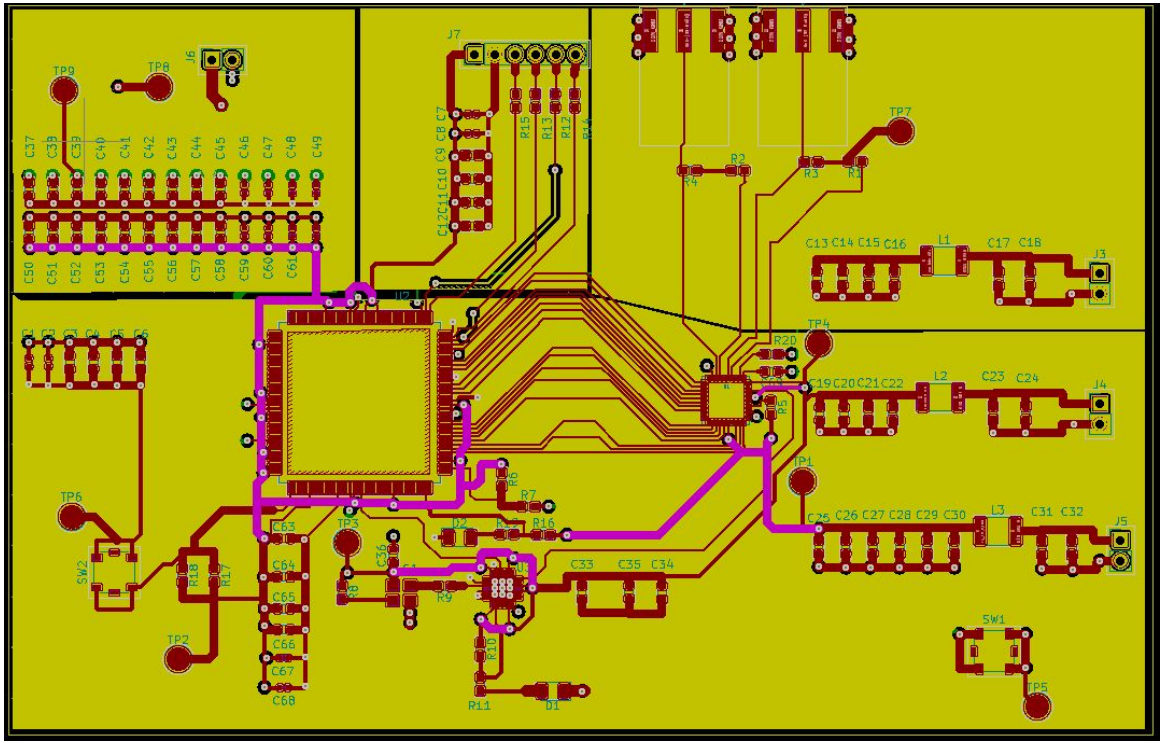

Figure 7: PCB of FPGA, DAC, Clock, & Buffer

Preliminary Detailed Design (Op-Amp)

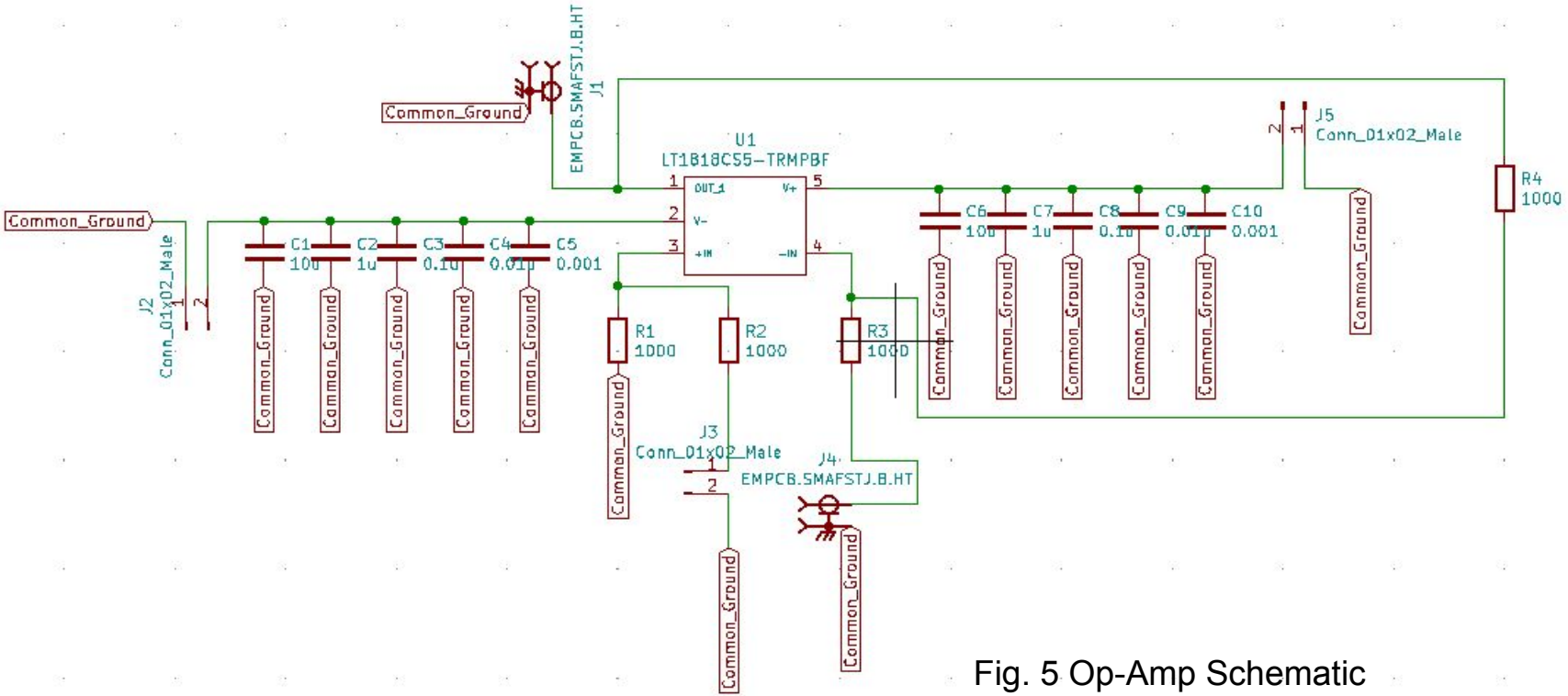

Fig. 5 Op-Amp Schematic

Progress Pictures (Op-Amp: Layout)

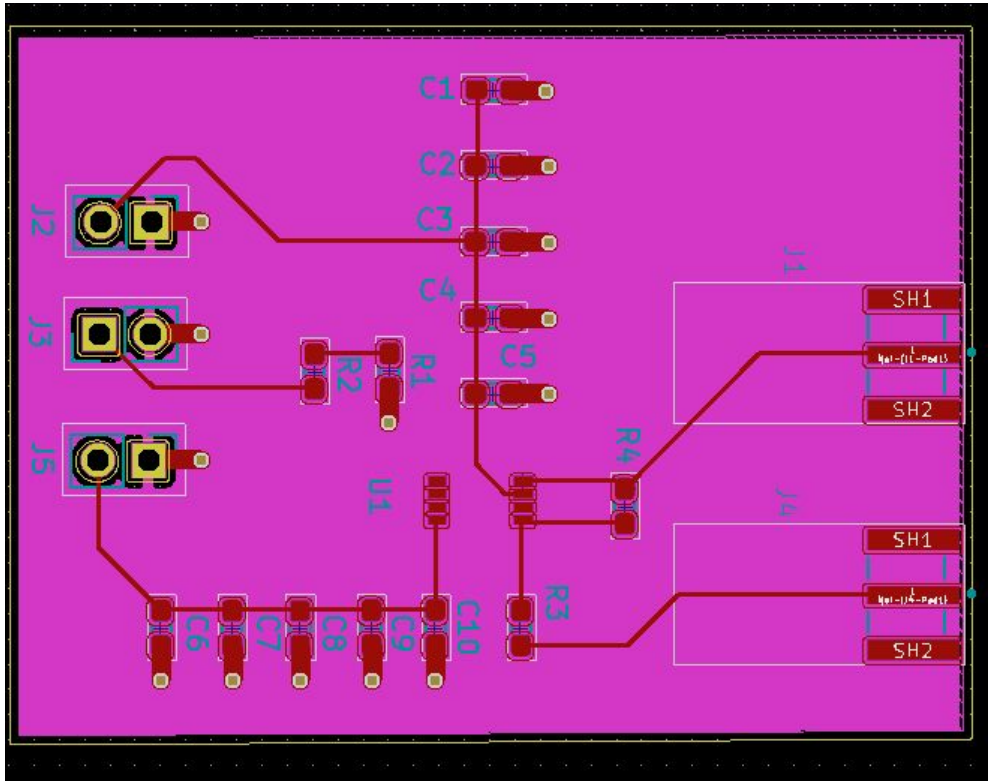

Fig. 6 Op-Amp

Questions?