

# Integrator / Digitizer Test Card

## Purpose of the Test Card

- ◆ Evaluate the performance of the proposed integration, digitization and data processing methods.
- ◆ Evaluate the integrator, digitizer and other components and circuits in a realistic context.
- ◆ Discover sources of noise and EMI both on and off the circuit card.
- ◆ Experiment with techniques to improve the signal to noise ratio of the readout.

More →

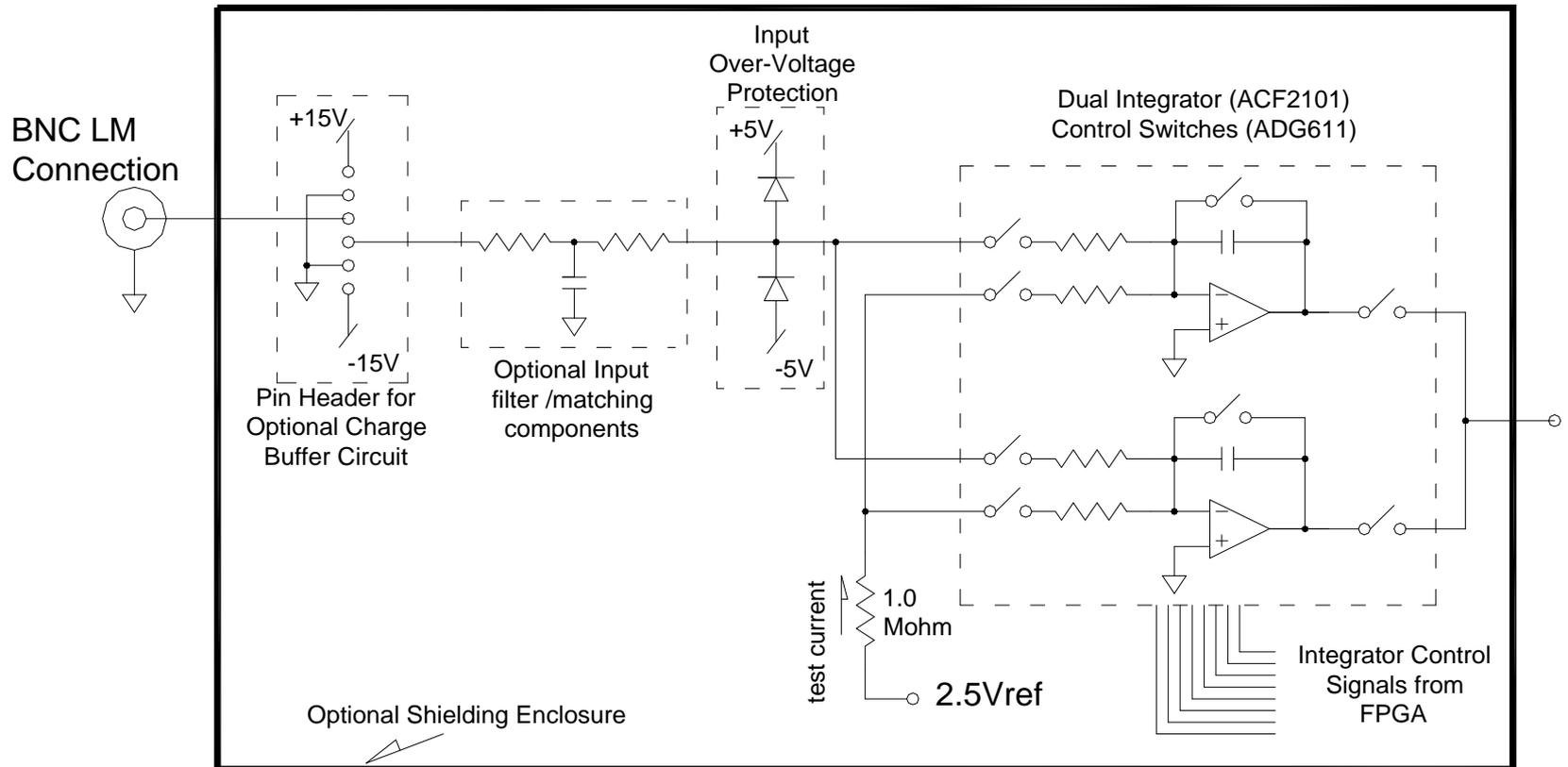
# Integrator / Digitizer Test Card

## Purpose of the Test Card

- ◆ Explore the impact of cabling on our measurement.
- ◆ Measure the actual power requirements.
- ◆ Work through the procurement, assembly and other mechanical details of the card.
- ◆ Determine which features are unnecessary and which may need to be improved or added.

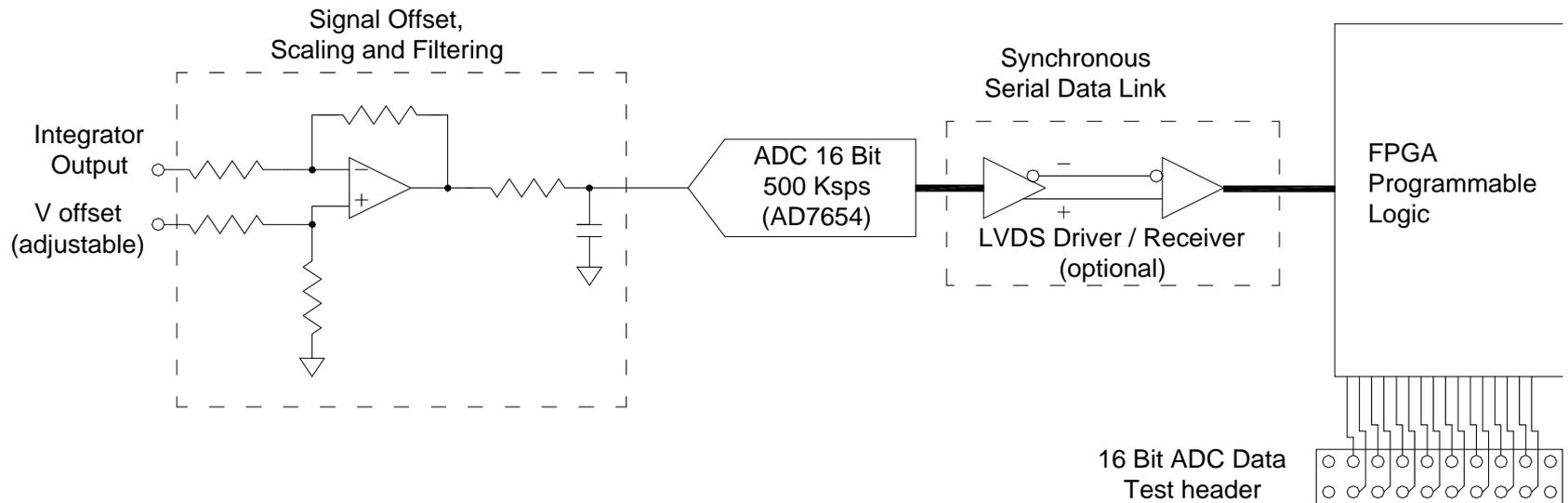
# Integrator / Digitizer Test Card

## Integrator Input Section



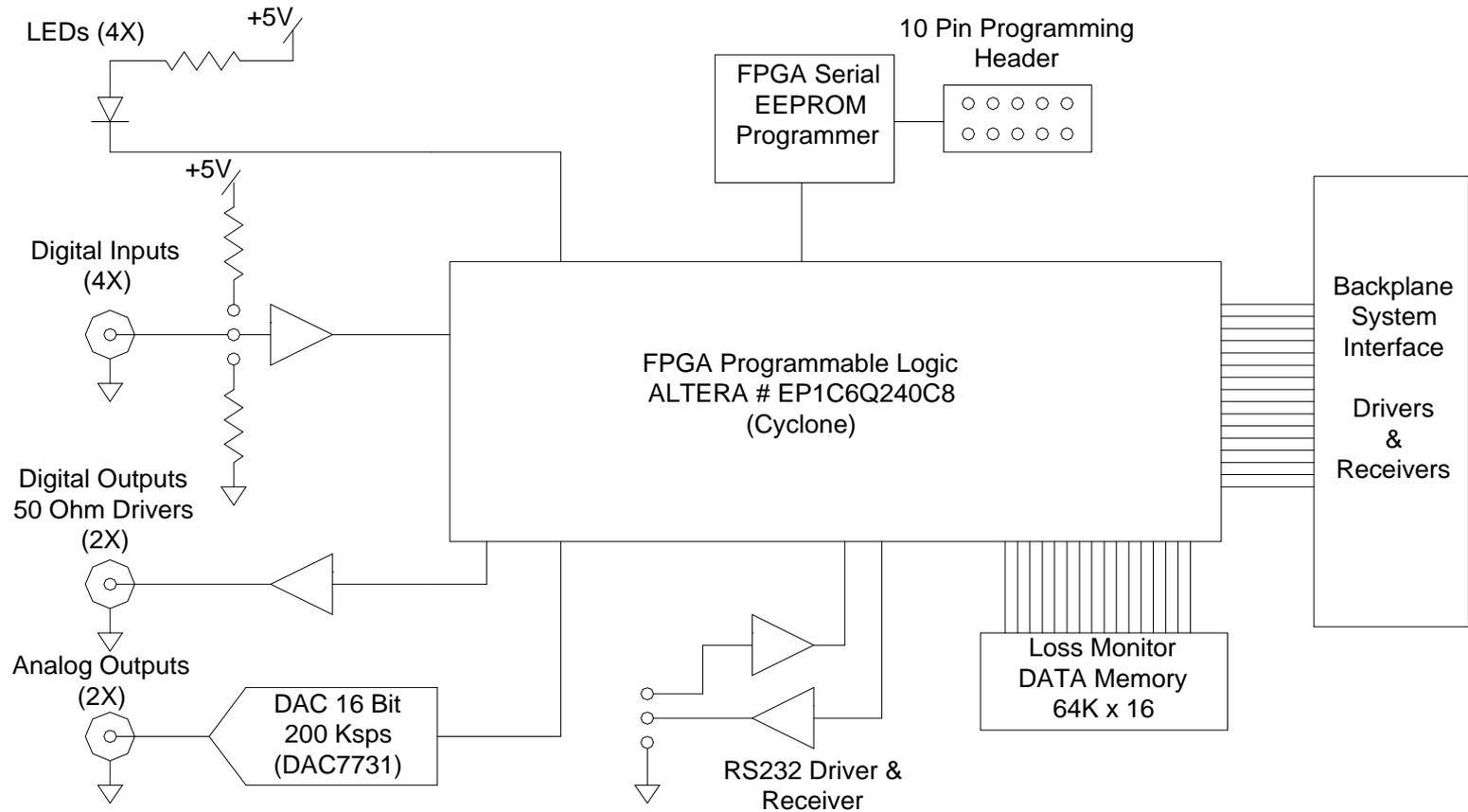
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## Digitizer Section



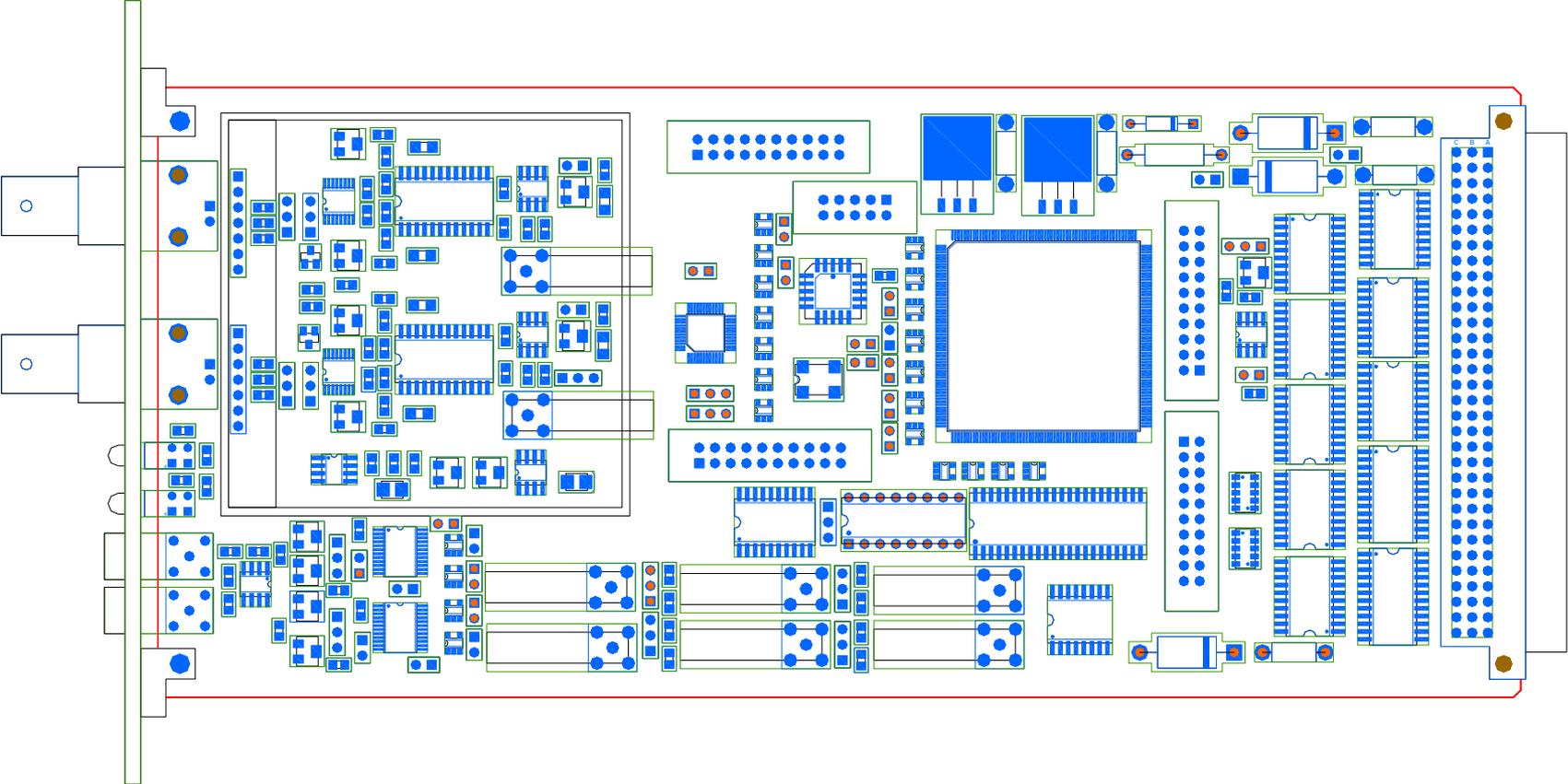
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## Digital Section



# Integrator / Digitizer Test Card

## PCB Layout



# Integrator / Digitizer Test Card

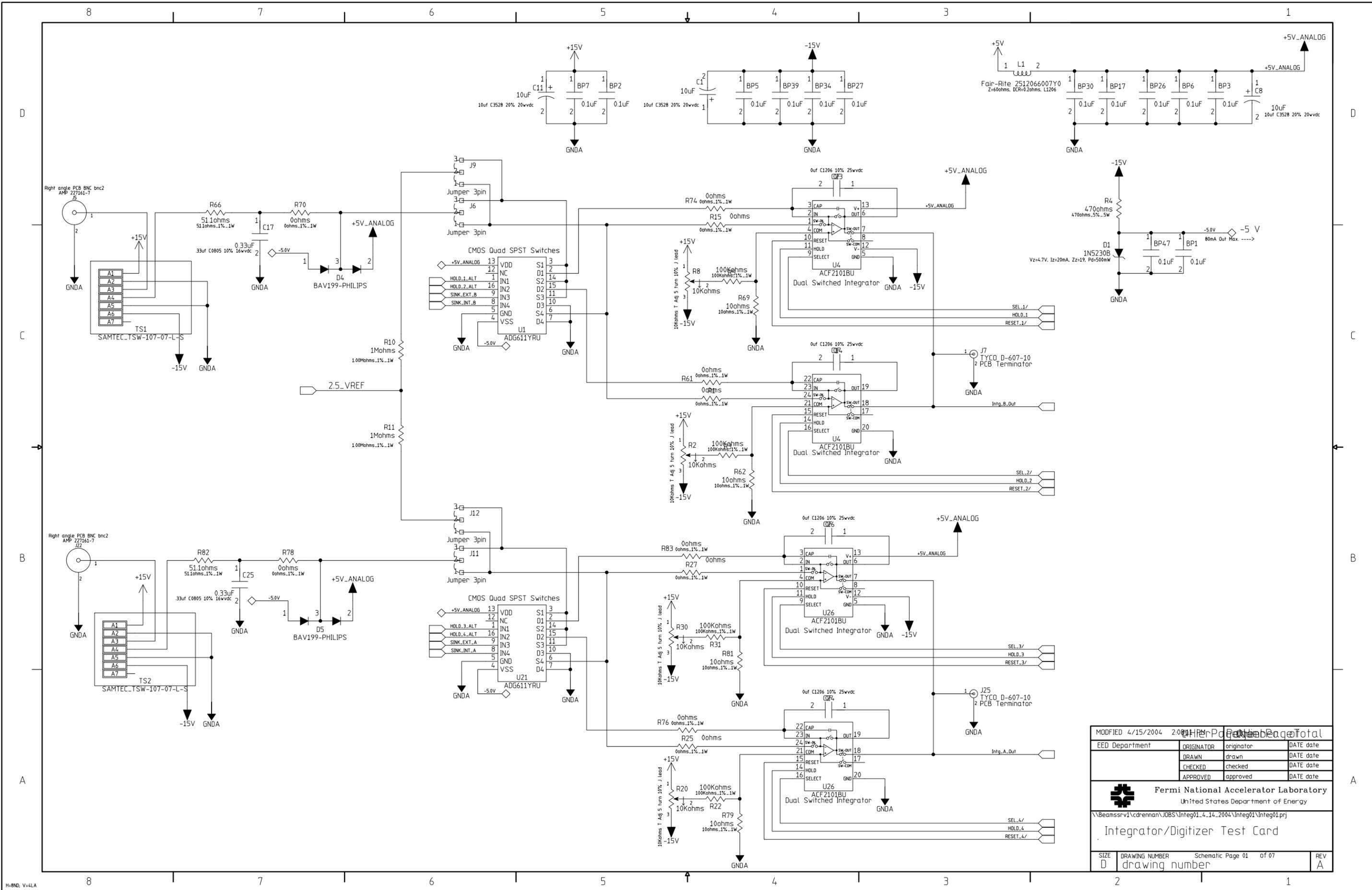
## Candidate Test Signal Sources

- ◆ Precision DC voltage source in series with a large value resistor.
- ◆ Pulse or other arbitrary signals generated by on card FPGA and DAC in series with a large value resistor.
- ◆ Precision charge currents produced using a Keithley 236 Source Measurement Unit.
- ◆ Actual charge currents from Loss Monitors in the Tevatron or Booster.

# Integrator / Digitizer Test Card

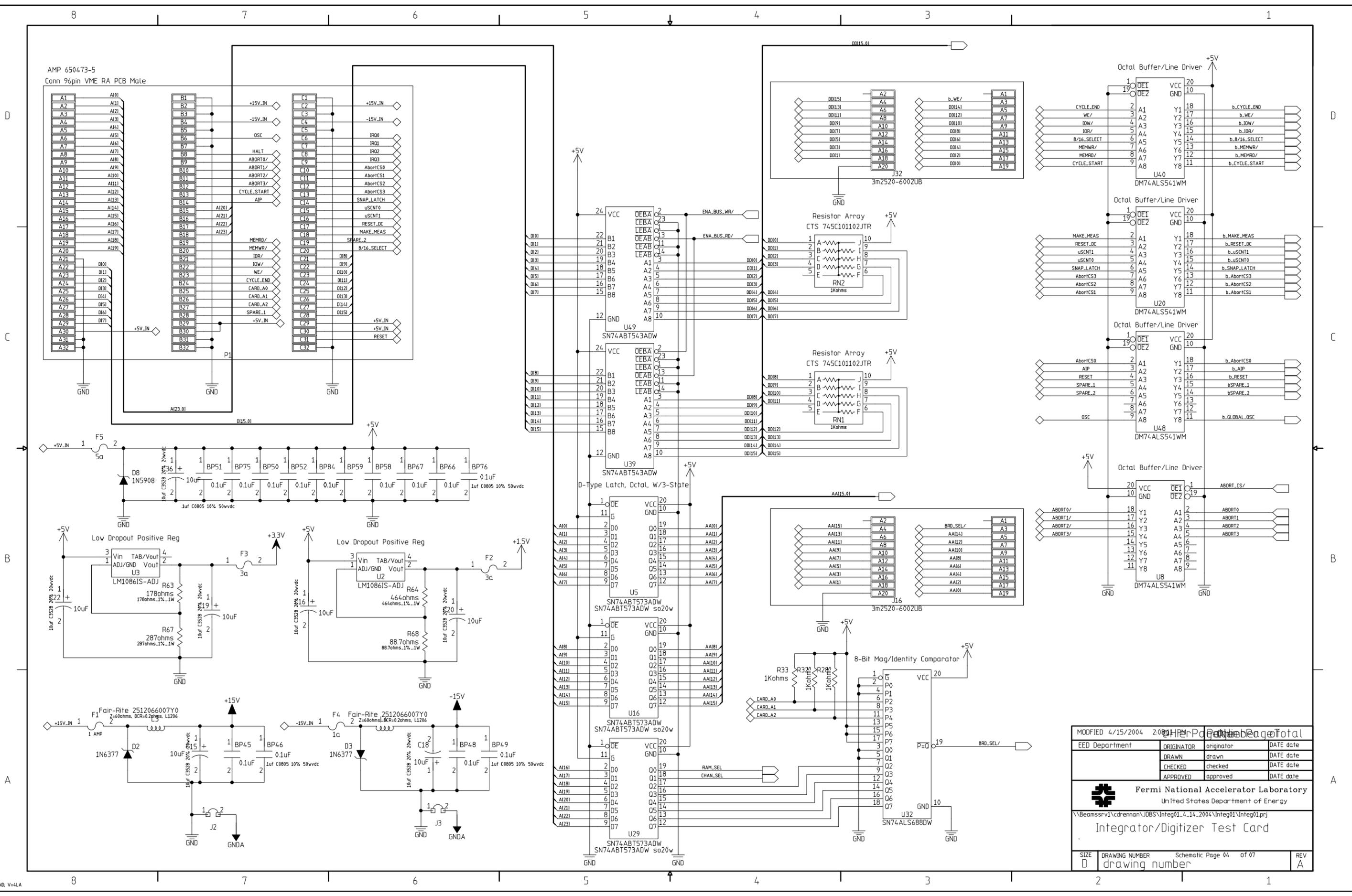
## Acquiring and Evaluating Test Data

- ◆ The PPD ASIC Test Stand will connect to the 16 Bit ADC Data Test Header, and process and display results using Visual Basic routines.
- ◆ Tests in the field could use the RS-232 serial port implemented in the FPGA.
- ◆ Later test will use the proposed backplane interface to collect data.



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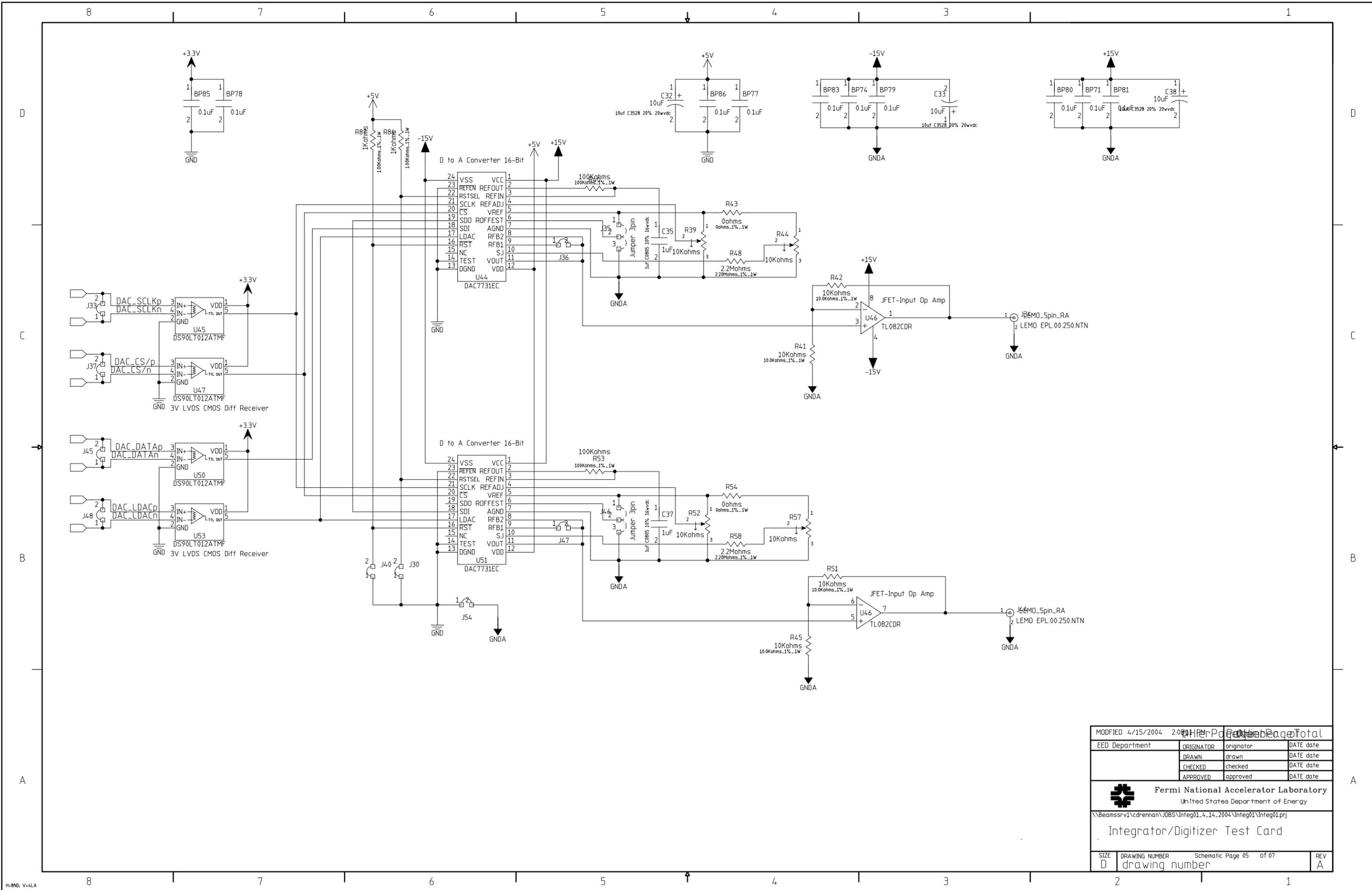




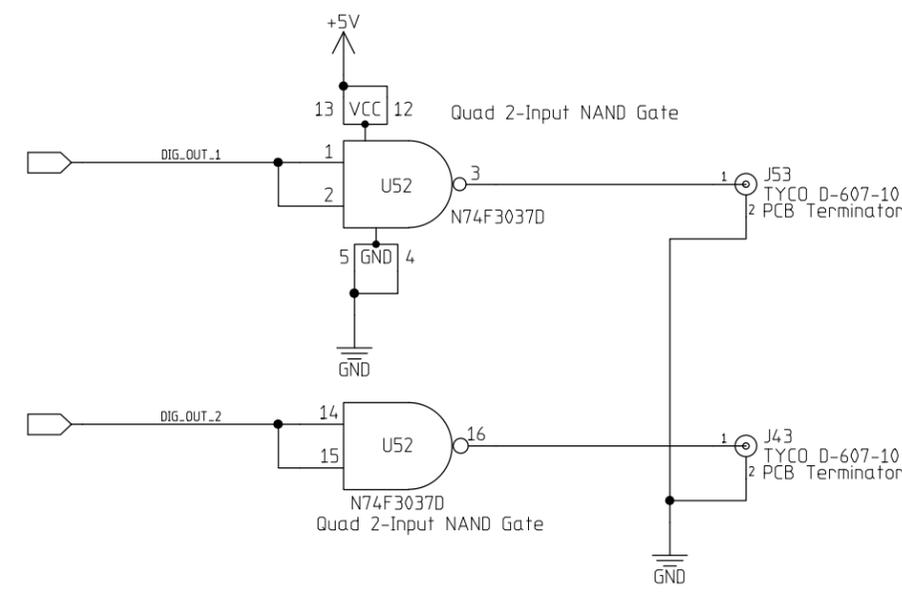
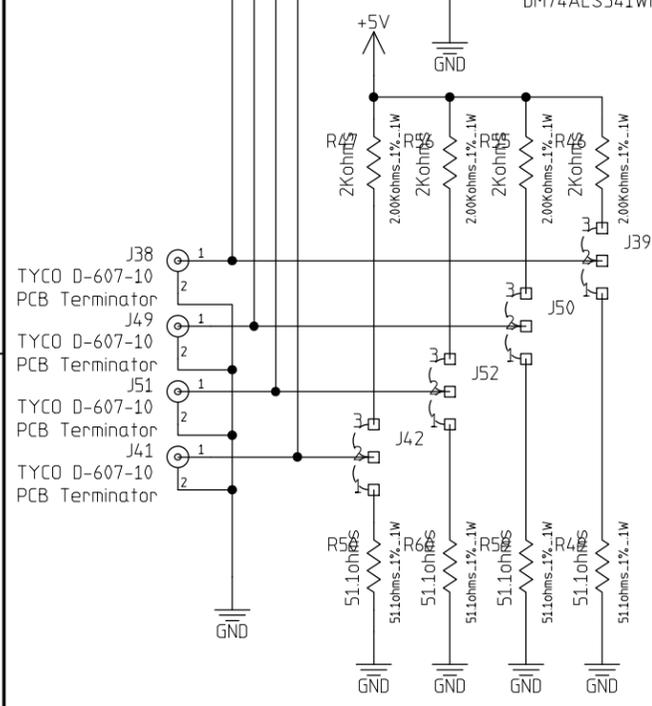
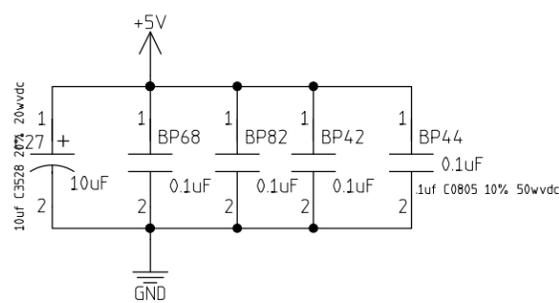
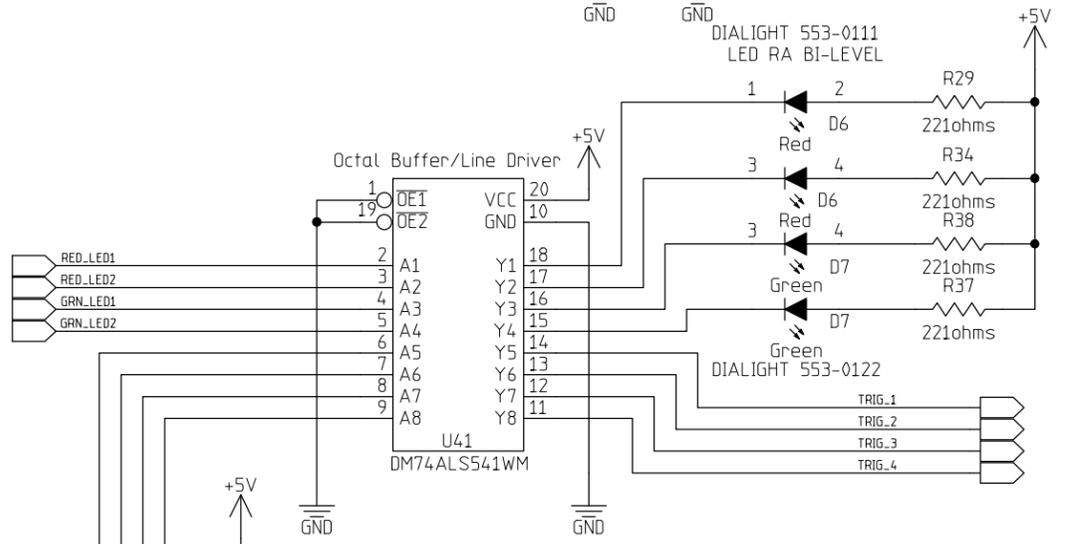
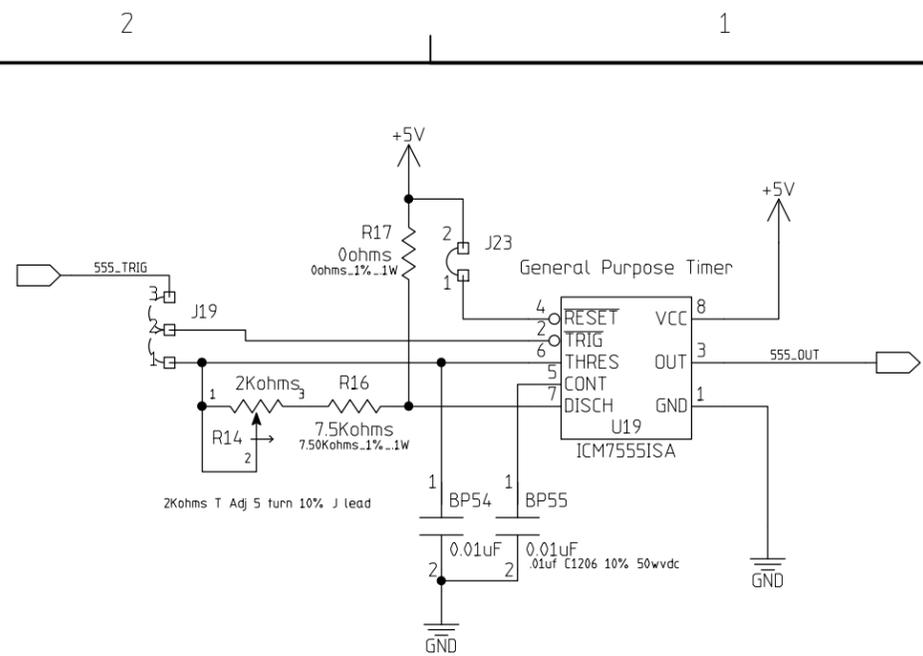
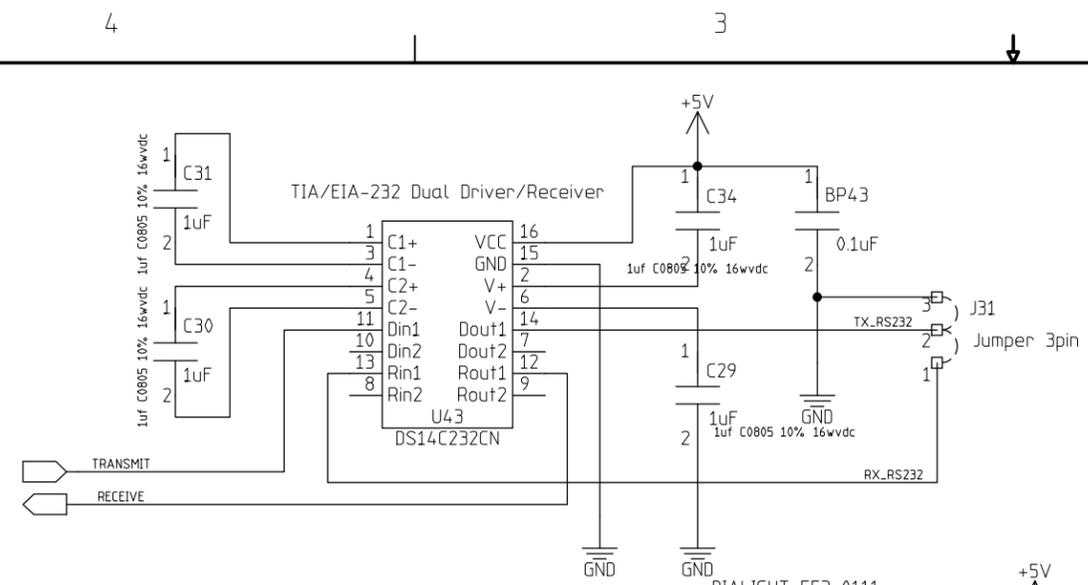
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**Integrator/Digitizer Test Card**

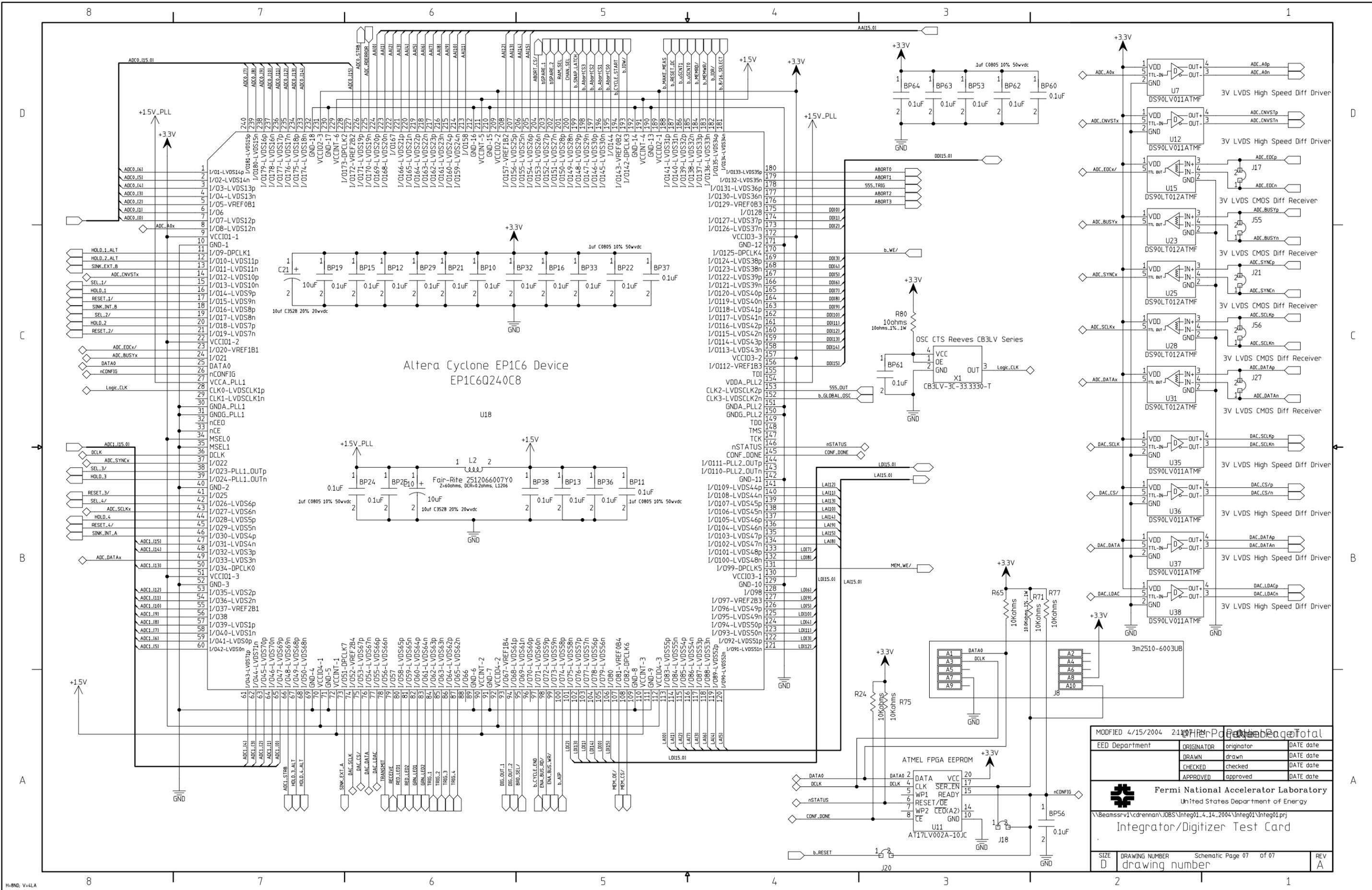
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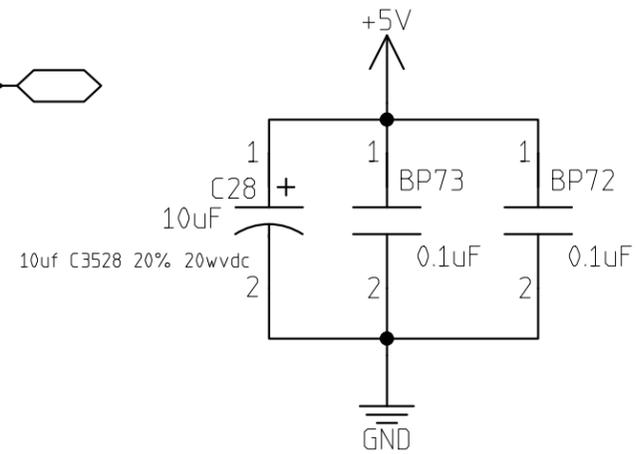
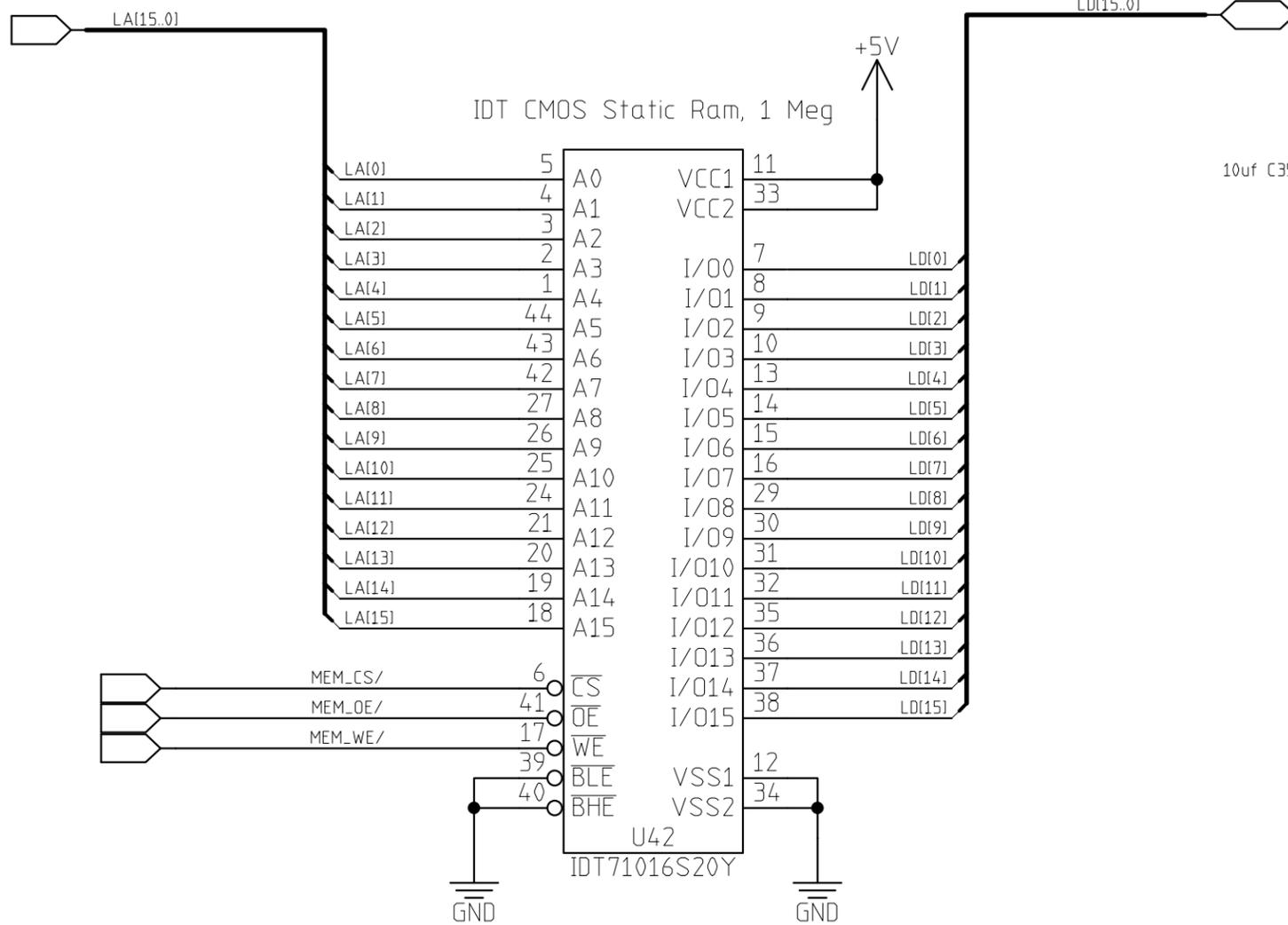


Altera Cyclone EP1C6 Device  
EP1C6Q240C8

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