

FPGA Qubit Package - Project Checklist

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Baseline

- Figure out how to use lab equipment
- Configuration parameters
 - specify for Megan to implement
- Data dump module
 - timing and communication protocol
- Data read (save as text file on computer)
 - timing and communication protocol
- Set-up simulated qubit signals
- Receive and output digitized signal values
 - serialization
 - storage buffer
- Output random I-Q values
- Configuration parameters
- Timing module
 - deal with trigger
 - sync with input
- Linear Classifier
- Interface with Labber
 - Make plots of data
 - Python scripting
- CORDIC rotation
- Integration / Averaging

Stretch

- System fully integrated in measurement chain for experimentation
- Quantum error correction
- Full integration with Labber
- Experiment scripts
- Run QST on data from experiment
- QST verilog implementation
- De-noising
- Integrate into measurement chain
- Process data from quantum processor

Expected

- Full system working in simulation
- Binning
 - variable bin width
 - storage
- Horizontal classifier