Project scoping: UCN Kicker Sequencer Module (KSM) firmware

Proponent: TRIUMF UCN group
TRIUMF contact: Thomas Lindner
Commitment #: ???

Motivations and overall goals
We need a control system for UCN kicker magnet that will direct a fraction of beam bunches to the UCN beamline. Using either a PPG or IO-32 or Altera Cyclone V SoC evaluation card, the STD should provide firmware for the proposed Kicker Sequencer Module (KSM). This firmware will need to provide a configuration interface that can be used by an EPICS IOC program.

Related Documentation
The document kicker_control_request.pdf provides significantly more details about the overall kicker magnet control, as well as the necessary functionality for the KSM module.

Deliverables
- Firmware:
  - provide firmware that supports KSM
  - provide help integrating firmware with EPICS IOC.

Synergy with other projects
None.

Task list

Task	Responsibility	Weeks of work
Provide KSM firmware	XXX	XXX
Provide support for EPICS control	XXX	XXX

Scheduling:
Requested by proponents:
- Complete functionality: July 15, 2016

Scheduled by STD:
- ???

Other Considerations
- I will probably ask the control groups whether they would prefer a VME processor based solution or a Altera Cyclone V based solution. This hardware decision will need coordinated between whoever does the firmware and the EPICS.
- The schedule above is based on the rest of the UCN beamline being ready for first tests in July/August. If that slips (ie because the rest of the beamline controls are not ready), then the schedule for KSM firmware can be pushed back.