Plans for upgraded Tevatron SBD system

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1. General goals
2. Specific milestones

Thanks to discussions with Bob Flora

Consider Main Injector later.

General goals

Obtain longitudinal distributions of individual bunches:

- Average several traces to reduce noise
- Use new scope to:
  - Faster sampling: 0.2 vs 0.5 nsec
  - Do measurements faster.

Have a better tool in general.

Understand baseline noise and signal fluctuations.
Understand calibration drift.

Plan

1. Start with LeCroy 7200 scope on loan.
   Can rent for $1800/month when it gets recalled.
   Tektronix model– waiting for response on specs test.
   Come to decision on which scope to buy.
   I will access Bob's mac via "Timbuktu"
2. Exercise the scope in Bob's office.
   Drivers, averaging time tests, noise tests.
   $\approx$ next week.
3. Move scope to F0, in parallel with old scope.
   Brian Fellenz has splitter ready. Will add a bit of noise.
4. Implement data processing
   (a) gain synthesis
   (b) FIR filter
   (c) AC coupling compensation

(d) Histogram baseline subtraction.

$\approx$ 4 weeks.

5. Raw data viewer
   Capable of viewing all stages of data processing.
   $\approx$ 2 weeks.
6. Swap new system into Acnet. Disconnect old system.
7. Merge in Adam's program.
8. Start discussions on Main Injector.