



# Tevatron BPM Upgrade Project Review Summary

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Tevatron Department Meeting

## Technology Choice Review

- The Tevatron BPM Project had a technology choice review on Tuesday, December 16, 2003.
- Charge, talks, etc. can be found at:  
[http://www-bd.fnal.gov/run2upgrade/reviews/Tev\\_BPM\\_TechReview.html](http://www-bd.fnal.gov/run2upgrade/reviews/Tev_BPM_TechReview.html)
- One important explicit goal written in the charge is to have a system ready by October 1, 2004.

## Talks at the Review

- Project Overview - Steve Wolbers
- Requirements - Mike Martens
- Specifications - Jim Steimel
- P/pbar separation measurement status - Rob Kutschke
- Electronics choices - Vince Pavlicek
- Summary - Bob Webber

# Electronics Choice

- The project proposes to use a modified RR Echotek ECDR-GC814/8-SV board as the choice for the core electronics.
  - Changes include:
    - Dual-port RAM instead of FIFO.
    - Flashram instead of EPROM (allows programming FPGA over VME bus).
    - VME interface replacement (Cyprus->Tundra)
- Many reasons for the choice, including:
  - Timescale
  - Availability of people/skills
  - See Bob Webber's talk for a complete discussion of the choice.

# Recommendations from the review (in my words)

1. By February show that a Echotek system (RR version) can produce turn-by-turn and closed orbit measurements using the undersampling technique and with the required accuracy. This should be done before a release of a purchase order for the full set of boards. This should not be held up until a proof of the p-pbar de-embedding technique is shown to work.
2. There should be an allowance for a second signal path for some subset of the BPM's for a system that can use timing to separate p and pbar signals.
3. A system integrator should be appointed.

## Other issues/concerns

- Lack of a Commissioning plan
- pbar/p separation
- Calibration/timing/test systems
- Accuracy in light of pickup geometry and off-center beams
- BLM interface Q/A, testing, signoff
- Schedule
- Transition to operations

## What's Next?

- Make measurements in Tevatron with Echotek, damper board, scope and DSR board to:
  - Prove that Echotek can measure p's with required accuracy
  - Prove (advance our learning) of the pbar/p separation
- Prepare for a large Echotek purchase
  - Sole source
  - Lots of signatures
- Organize/coordinate important tasks like calibration, commissioning, etc.
- Recruit system integrator