

Notes from the 10/1-/06 MI BPM Upgrade Meeting
Bob Webber

These notes can be found in Beams docDB #1526.

Agenda as announced:

- Project announcements - Bob
- Transition board controller status - Stefano
- & Board by board gains - Stefano + Steve + Bob Dysert + Andrea
- MI BPM status list ("punch list") and comments on observations of performance improvements with board-by-board gains - Dave
- Diagnostic/testing - Marv, Manfred, Peter, Steve
- Software - Steve, Luciano, Brian, Bob West
- 2.5 MHz pbar measurements - 1st, last turn
- Validation - Rob
- AOB

0. Announcements.

- Steve Wolbers will not be present at this meeting.
- Dave Capista will be away from the Lab Wednesday, 10/11 through Wednesday 10/18. Denton Morris will fill in for Dave as BPM system liaison.
- MI-10, final house needing upgrades for board-by-board gain control and 2.5MHz channel high pass filters, will be upgraded today.

1. Transition board and board controller status

- Stefano

Ready to upgrade MI-10 to current level of all other houses for board-by-board gain control and readback. Some work will yet remain to complete desired diagnostic capabilities in the firmware. All houses will need final firmware updates when this is finished and tested. Spare controller boards are available as needed.

Stefano's slides can be found at:

http://www-ese.fnal.gov/mi_bpm_tb_ctl/MI_BPM_TB_Controller_Report_2006_10_10.pdf

- Andrea

Will have transition boards needed for MI-10 ready for today's installation. Anticipates having remaining spares modified to latest version level and recalibrated within a few days.

- Bill

Timing board firmware is final (for all presently known requirements). Bill needs to get all spare timing boards from PREP (and where ever else one might be found) to ensure they all get the latest firmware version installed.

- Bob Dysert

Working with Denton to test system at different intensities of 30 bunch tuneup beams to check out performance of the 53MHz gain balancing. First looks are promising that the board-by-board gain capability is both beneficial and adequate. Tests will continue. Bob is also investigating differences between measured and predicted (by Webber) relative signal amplitudes with board-by-

board gains operating. Some differences are grouped by transition board and some seem to be individual BPMs. Investigation continues.

- Marv

BPMs 420 and 626 have unexpectedly small signals relative to neighbors that are still not understood. Marv will check in tunnel for undocumented splitters or possible problems. Marv asked Dave about the few locations that have large apparent center offsets relative to old BPM system. Dave reported that the MI group is resigned to accepting the "new" offset values and they are operating with that philosophy, so there is no request to further pursue explaining the cause of the 'old system'/'new system' offset differences.

2. Operational issues and "punch list" - Dave Capista

Dave presented six item punch list

1) questions whether I44 bucket delay values are 1/2 bucket units or full bucket units. Brian Hendricks will check. Answer should be confirmed by measurements!!!

2) TBT time stamp implementation is wrong on I42 (Ming Jeng problem?)

3) Time stamps/time information (state and event) for Flash and injection frame is not yet correct. This may be corrected by most recent changes by Steve F. Dave, Steve F., and Brian should verify.

4) Implementation of Flash sample command ??? Dave had Steve F.'s name by this.

5) "Seam" for protons is observed to be at 531 rather than at 601. This is remnant of timing setup before installation of separate EchoTekes for 531/532 and 601/602. Dysert and Webber are to correct this.

6) Alarms...?

3. Software issues - Steve Foulkes, Brian Hendricks

- Steve has new version of front-end software to boot into operating systems at next opportunity. Includes modifications requested by Dave C. and includes enhancements necessary to support the system test signal manipulations and data handling that have been requested by Manfred and Marv.

- Bob West is on vacation until October 23. Progress on applications end of system test signal operation and data handling is on hold until his return.

4. Validation - Rob Kutschke

- Rob showed plots of noise as observed on ~100 turn stream of raw data especially on BPM515. He finds noise that seems to maintain phase with beam over period of around 100 turns (1 millisecond). Also sees noise that is 'in band' and cannot be rejected by additional filtering. No major conclusions, except that some noise problems probably cannot be solved without installation of better cables. Rob's slides can be found in beams-doc-2493.

- Rob will provide a list of "noisy" BPMs to help make decisions on possible upgraded cable installations at selected locations.

5. AOB.

- Bob W. requested that Steve F. obtain a ringwide set of 2.5 MHz 'safe mode' data at injection time on accumulator pbars to Recycler cycle.