

Notes from the 10/24/06 MI BPM Upgrade Meeting
Stephen Wolbers
These notes can be found in Beams docDB #1526.

Agenda as announced:

- Project announcements
- Transition board controller status - Stefano
- MI BPM status list ("punch list") :

List from Bob Webber's notes from 10/10/06 MI BPM meeting notes:

- 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...?
 - 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.

- No meeting on Tuesday October 31.
- Depending on the progress and outstanding issues we may meet on November 7. Watch for the announcement.

1. Bob Webber

- Seam is set to be location 601.
- Raw mode has been checked and I44 is now using buckets, not 1/2 buckets. Other modes need to be checked but it is hoped that they are

all using full buckets.

- There was a long discussion about the range of delays available and whether 12 bits from the timing board is enough. Are we close to the edge and not have enough flexibility? Three possibilities (at least) come to mind:

1. Leave everything as it is. It works and we can live with it.
2. Modify the timing board to use 16 bits rather than 12. The will give enough flexibility in essentially all conditions. The amount of effort to do this is not expected to be large but some more careful investigation needs to be made to ensure that this is not a big job.
3. Have the front-end software adjust the turn delay when a large channel delay is entered. This may not work because of the possible mismatch of channel and turn delays that might occur.

2. Transition board controller status - Stefano

- Stefano is finishing up work on diagnostics and documentation. Estimated finish is mid-November. Final installation in November, final sparing will be worked out as well.

3. MI BPM status list ("punch list") :

List from Bob Webber's notes from 10/10/06 MI BPM meeting notes:

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!!!

*** Discussed above. Looks OK.

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

*** Ming Jen will find and fix.

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.

*** Fixed.

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

*** Steve Foulkes is close to the final implementation. This uses turns

rather than threshold tests to find the first and last turn FLASH.

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

*** As discussed above this is complete.

6) Alarms...?

*** Working well.

7) State 0 behavior.

*** Almost complete.

4. Diagnostic/testing - Marv, Manfred, Peter, Steve, Bob West, Brian

- The library work for the diagnostic program is completed.

- The application program needs to be written. Bob West has begun on the project. The scope of the program as well as the question of phased implementation (manual program first, automation and archiving later) is still being discussed. The strategy for producing the program will be worked out.

5. Scaling/calibration - Bob Webber

- Bob asked about the scaling (or transformation) from A and B to position when the beam is well away from 0 in the orthogonal plane. This is seen in a few locations under certain beam conditions. The front-end could apply any transformation but some information about the orthogonal coordinate would have to be given to the front-end somehow. It was decided, after a little bit of discussion, that the current system (assuming 0 in the orthogonal coordinate) will continue to be used.

6. Validation - Rob Kutschke

- Rob's slides can be found in beams-doc-2536.

- Rob looked at state 20 (pbar from Accumulator to Recycler) in 2.5 MHz TBT. He is measuring noise in varying ways. This information will be given to MI department as a list of BPM's that can or should have cables replaced or other noise-reduction techniques.

- Rob also measured the tunes and resolutions for "good" BPMs. The resolution is about 150 microns. The specification (from beams-doc-1786) is $500/3 = 166$ microns (see table 8, p 12).

4. AOB.

- None.