

Notes from the 8/23/05 MI BPM Upgrade Meeting
Stephen Wolbers
These notes can be found in Beams docDB #1526.

Agenda as announced:

1. MI BPM review report - Steve
2. Status of requirements update - Dave and Alberto
3. VME crate - Tim
4. FCC teststand - Vince, Bakul
5. MVME processor - Luciano, Margaret
6. Combiner and Transition boards status
7. MI30 setup, FE software, timing board - Luciano, Charlie, Peter, Bill
8. Requirements discussion - Dave and Alberto
9. AOB

1. MI BPM review report - Steve

- A draft review report has been mailed to some people and it will presumably be final soon. In the meantime Steve went through the report and identified 12 "recommendations" that were sprinkled throughout the text. These are repeated here.

- Steve will continue to work with Mike Martens to get the final report and get it distributed.

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12 recommendations:

General Conclusions:

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1. "Also, the requirements document included implementation details that the committee thought was more appropriate for a separate design document."
2. "There needs to be some kind of documented agreement between the two projects, so that resources are conserved and not over utilized (such as rack space)." (BLM/BPM)

Details about Improvements to the Requirements Documentation

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3. "First, there is a requirement that the system be capable of measuring the tunes of the protons and pbars. This is not explicitly stated in the requirements...This should be written explicitly, describing the conditions under which the measurements will be made."
4. "Second, there are implementation requirements spelled out in Bob Webber's talk. These requirements should also be explicitly mentioned in the requirements document."
5. "... there is an understanding that the system will be blind to beam during the slipping process of slip stacking. This should be stated explicitly in the requirements."
6. "After discussion, the requirement is really that the system be capable of measuring individual batches at their injection or extraction times."
7. "The appendix of the requirements document is an excellent start to documenting the requirements that the buffer diagram implements."
8. "The only thing missing from the appendix is some kind of data lifetime requirement...If the information in the appendix included this information, the buffer diagrams would naturally follow."

Answer to Questions in the Charge

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9. "This was not completely clear." (Answer to the first question in the charge.)
10. "However, the requirements should be better documented to allow for independent verification of the design." (Answer to the second question of the charge.)

Miscellaneous Comments

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11. "The time estimates for debugging problems with the front end code need to be adjusted to take this into account."
12. "This is not a show stopper by any means; I want them to make sure they understand the fraction of the cycle for which they will not have closed orbit data."

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2. Status of requirements update - Alberto

- Dave is away this week. Alberto has been MI coordinator and that has left precious little time to update the requirements document.

- Nevertheless there has been progress. Alberto has a rewritten section from Dave Capista that he can include and release as v5. When he gets time (his duties end at the end of this week) he will write the additional section that describes what measurements are required during each cycle. That will be v6 of the document. We can expect v5 this week, depending on how the accelerator runs, and v6 next week. We will continue to press this given how important it is for the eventual success of the project.

3. VME crate - Tim Kasza

- Tim gave a complete discussion of the 3 DAWN VME crates that have given trouble in the TeV BPM system. His slides can be found in beams-doc-1939.

- The first crate was sent to DAWN, the trouble with the crate hanging was not repeatable by DAWN, and the crate was returned to Fermilab. Some damage to the crate was seen during shipping. The crate was repaired and has been in burn-in since Friday. The previous trouble has not been seen yet. Peter suggested looking at the voltage with a scope and when more boards have been loaded into the crate. This sort of hanging has been seen in other VME crates.

- The second crate showed a bad voltage (-8.4 V on the -12 V line). It was returned to DAWN and they found a problem with a washer. In addition, the crate was damaged on the way. An ECO to replace 4 washers with nylon washers has been recommended. We will discuss how to make the change on the 30 crates. The crate at DAWN will be shipped back to us (hopefully in a protected package.)

- The third crate is still at D0 and has not repeated the problem of -12V drifting "high" (up to -13V or so).

4. FCC teststand - Vince, Bakul

- A plan has been developed to get MI and TeV clock and ACNET to FCC3 for teststands. This plan was developed and has evolved over the past weeks to take advantage of the infrastructure already in place. The

plan provides MDAT, TCLK, MI BSYNC and TeV BSYNC. Reecycle BSYNC will not be provided nor will the special Booster pulse the precedes injection to MI. Dan Stenman, Greg Vogel, Ron Cudzewicz, Donna Lamore and others are involved in making the proper connections and helping to get the proper hardware (switch, jumpers, etc.) in place. By the end of this week the hardware should be ready and next week the signals should be made available, assuming all goes well.

5. MVME processor - Luciano, Margaret

- Options for MVME are 2400, 5500 and 6100. The 6100 is quite new and Fermilab does not yet have a driver working for it. The 2400 is quite old and has memory limitations. The 5500 is in use at Fermilab (CDF and SDSS), has up to 1 GB of memory and also has Gbit ethernet (not immediately useful). It is also faster than 2400, I would guess.

- Margaret recommends that we procure the 5500 for the MI BPM project. It was suggested that the TeV code be ported to a 5500 first to ensure that it works without major software changes.

6. Combiner and Transition boards status

- My understanding is that the Combiner boards will arrive next week. The first 20 or so will be assembled into their boxes, tested, and will then be available for installation.

- We discussed installation. It was thought that quite a few could be installed during an 8 hour access to MI. We will know more about the shutdown schedule after Sept 1 and can make more specific plans at that time.

- The transition board 2 channel analog prototype is being assembled and is on schedule.

7. MI30 setup, FE software, timing board - Luciano, Charlie, Peter, Bill

- The MI30 setup has 2 Echoteks, 2 timing systems (Bill and Echotek). The plan was to use both timing systems at $10/7*RF$ but that has not worked yet. Charlie is working on the problem and he and Peter are working on taking data from each of the 2 Echoteks separately.

- The timing board is moving forward. The schedule to build final boards depends on layout effort but otherwise is ready to proceed.

- The front-end software is moving forward. A version exists that does only closed-orbit measurements on the teststand. Modifications are

being made to include Charlie's code. Other futures may include running on the 5500 and installation/testing in MI30.

8. Requirements discussion - Dave and Alberto

- Deferred until Dave returns, documented updated.

9. AOB

- Duane mentioned a special setup using the Recycler system in the MI used for BLT and indicated that the MI BPM project should understand if something similar is needed so that it can be planned for. Alberto will take this away with him and consult with Bob Webber and others to understand if there is such a requirement.