

Notes from the 10/18/05 MI BPM Upgrade Meeting

Bob Webber

These notes can be found in Beams docDB #1526.

Agenda as announced:

Project Announcements : Bob and Steve
Combiner Board status : Marv, Tim, Bob Forster, Vince
VME crate purchase status : Bob Forster
MI30 status : Peter, Bob Webber
Transition Board status, bill of materials : Manfred
Transition Board crate, crate controller, backplane : Adim, Manfred
Signal cables : Bob Forster, Adim, Marv
Service Building survey/BLM coordination : Tim, Marv
Front-end software : Luciano
MVME processor status : Luciano, Margaret, Steve
Online software : Brian
Validation: Rob Kutschke
MI BPM requirements/MI issues : Dave and Alberto
Timing Board : Bill
AOB

0. Announcements - Bob and Steve

- Bob was absent (electrical safety training).
- The shutdown date (and duration) is firming up. The start date is March 1, 2006. The duration (total) is 14 weeks. It will probably be 12 weeks for MI.
- This tells us something about what we want to shoot for in terms of early prototypes, final installation, etc.
- One important goal is to have a "final hardware/functional software" system installed, tested, and operating as replacement for at least one MI BPM "house" no later than January 15, 2006. This does not preclude (nor should it) pushing any aspect of the project more quickly than this, nor does it imply that achieving this goal is sufficient to ensure success in all other aspects of the upgrade.
- In particular, it will be important to discuss and understand what systems can be replaced/upgraded during the shutdown and what will be required to be functional at the end of the shutdown in order that MI Department can circulate beam and bring the accelerator up.

1. Combiner Board status : Marv, Tim, Bob Forster, Vince

- 13 boards were installed during an access the previous week. That gives a total of 36 (or 37) boxes installed, out of 101 boards that have been received by Fermilab thus far.

- We will learn soon how many additional boards (of the 124 remaining) have been assembled and shipped. Bob Forster is watching this rather closely for us.

2. VME crate purchase status : Vince, Bob

- Still in bid. We should consider closing the bid process as soon as possible (working with Procurement).

- There was some discussion of using some of the spare TeV BPM crates if needed to bring up test stands or a system in MI40.

3. MI30 status : Manfred, Peter, Charlie, Duane

- No new measurements. Manfred will be testing the prototype transition board.

4. Transition Board status, bill of materials : Manfred

- Manfred has been carefully checking linearity and other characteristics of the prototype board, including the behavior with very large input signals (53 MHz) and very small signals (2.5 MHz).

- Another test with real BPM signals in MI30 will be made with the current version of the prototype board.

- The board layout should be finished by the end of October. The bill of materials is quite long, there are many components, and there are some long lead-time items.

- We had a discussion of how the board development will proceed. It is expected that after the layout a single board will be built (probably in-house) and tested and then 3-4 more boards for use in the January prototype setup. In parallel we will investigate how the full 75 board production run will be made. There is much to be done!

5. Transition Board crate, crate controller, backplane : Adim, Manfred

- In addition to the transition boards we will need crates, power supplies, cables, controller boards, etc. for this system.

- Adim is looking into crates (6U) and power supplies. We should place the order for 11 crates as soon as possible.

- Adim and others are looking into the crate controller and the backplane. Both require some design work and of course production and testing, etc. Some aspect of the design requires that the transition board design be finalized. Some help for these components may be possible from CD/ESE and this is being discussed.

6. Signal cables : Bob Forster, Adim, Marv

- In addition to the crates and modules signal cables will be needed to carry BPM signals from the end of the RG8 cables in the top of the racks to the rear of the transition boards, from the front of the transition boards to the input of the Echotek boards, and the inter-crate cables for clock, control, etc. signals. All of this needs to be put together and cables ordered. The Tevatron cables and connectors should be looked at and copied where appropriate. It may even be possible to borrow some cables from the spare Tevatron BPM upgrade cables.

7. Service Building survey/BLM coordination : Tim, Marv

- We would like Marv to locate a place in the MI40 service building to place a VME crate and any other necessary hardware to start to look at signals from at least one BPM with the MI BPM upgrade software. This is likely to replace the MI30 setup and will be a good testbed for us as we move toward a full-scale system in January.

8. MVME processor status : Luciano, Margaret, Steve

- The order is moving through the system for the 11 MVME 5500 processors. The associated PMC cards still need to be ordered. Charlie still needs to do some testing and Craig McClure likely will order the cards.

9. Front-end software : Luciano, Steve F., Margaret

- Thanks to Peter and Adim the test stand in FCC is now able to take closed orbit measurements.

- Work continues on the tasks listed in Luciano's schedule. Version 1.1 of the code is working and so the work is on schedule at the moment.

- Currently working on FTP.

- Also working on the driver and the ability to read out the data from 10 boards in less than 0.5 seconds.

10. Online software : Brian

- Discussions continue on an "I6" type of program to control/specify the readout of the MI BPM upgrade. Linden Carmichael, Brian, and Dave Capista have been discussing the development of this new application.

- Dave Capista gave a short update on some details of operational modes of the MI. He has entered this document into docDB as beams-doc-1996. People need to look at the document to understand what issues/problems might be encountered given the types of clocks and signals that are used during MI BPM cycles.

11. Rob Kutschke : Validation

- Once Rob has data he will be analyzing it and showing results.

12. MI BPM requirements/MI issues : Dave and Alberto

- Alberto will finish the requirements document and will insert it into docDB this week.

13. Timing Board : Bill Haynes

- Bill is working on the firmware. A plan for assembling boards is moving forward. Hope to have the first board to test with in mid November.

14. AOB

- Adim is talking to Greg Vogel about the new beam extraction signal and getting it to at least one and possibly more service buildings. The project would like the signal in MI40 November 15.