RHIC BPM STATUS

Where we are,
Where we're going.
(for now)

August 7, 2008

R. Michnoff

Where we are

- Feedthroughs to be received end of August, and installed by end of September
- Nearly enough operational modules to fill ring, spares in progress (minimum of 10 spares is expected soon)
- Temperature significantly affects 150ps and 2ns trigger timing…. But timing calibration of 20ps delays with beam is expected to solve the majority of the position variation issue with temperature.
  - However, in 2006, position variations of approx 400 microns over 5 degrees F. was noted. This is still not completely understood. Additional tests will be conducted. ~150 micron variation over 10 degrees has been noted in the lab with a VFDG timing difference of 100ps.

Where we are

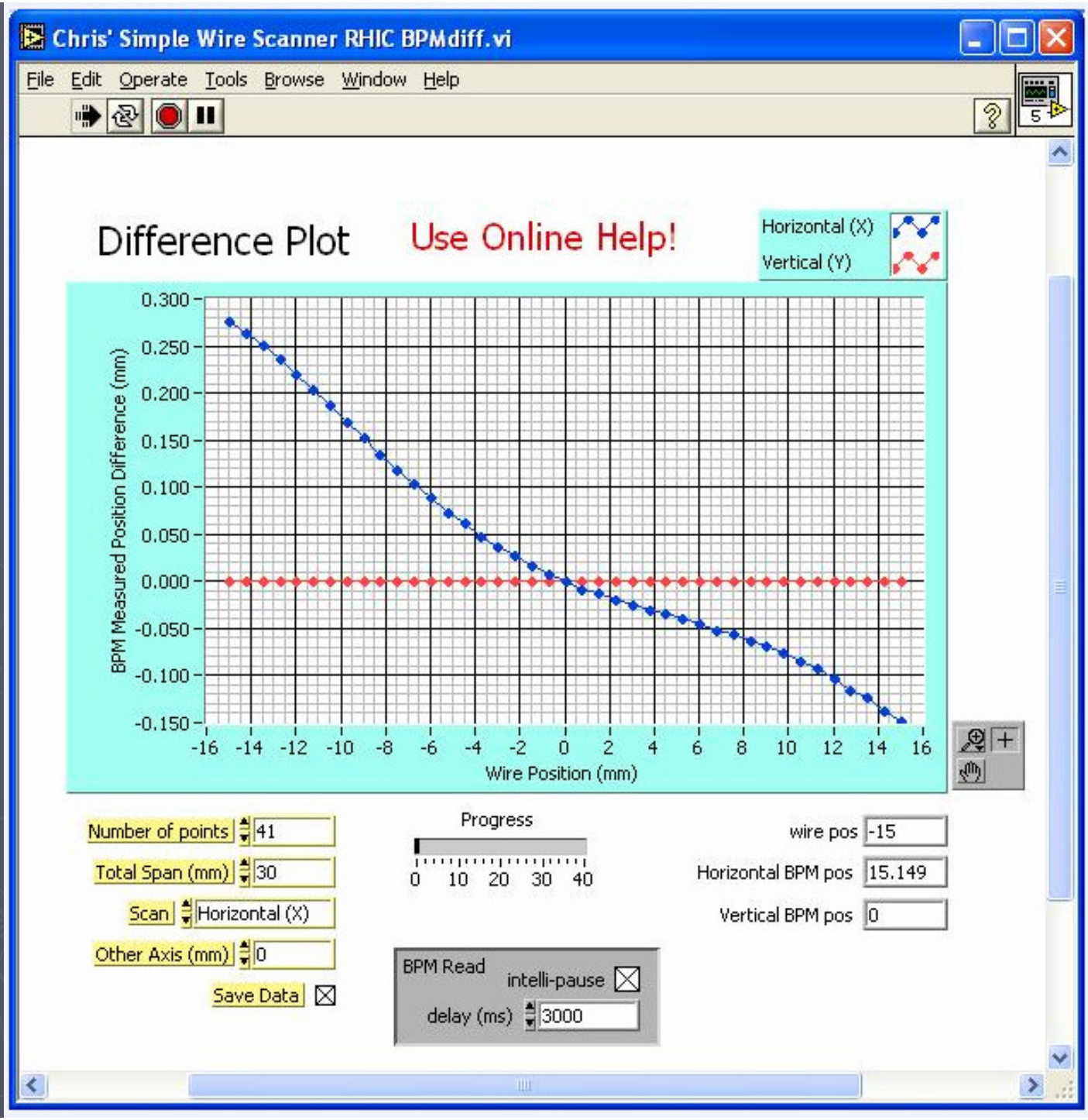
- Calibration checks in 1006B and 1003A indicate that recalibration of all units IS NOT required. Most zero measurements were within 40 microns of 0, a few were up to ~100 microns.
- Identifying causes of BAD data has been reviewed, and a new status word format has been proposed.
- Mapping BPMs with wire scanner is in progress

Where we're going

- Additional temperature tests to be performed
- Timing calibration with beam must be operational for upcoming run
- "Push-button" fixed trigger timing must be operational for upcoming run
- Implementation of Data Integrity checks must be implemented for upcoming run – development efforts include DSP, ADO, BPM class, Manager, Applications

Where we're going

- Additional system enhancements that may prove to be very beneficial include:
  - Running average orbit
  - Turn-by-Turn postmortem
- Do we need end-to-end testing to confirm that no cable connection errors exist?
- Integrated system tests planned for November.


Chris' Simple Wire Scanner RHIC BPMdiff.vi
File Edit Operate Tools Browse Window Help
Difference Plot
Use Online Help!
Horizontal (X)
Vertical (Y)
BPM Measured Position Difference (mm)
0.300
0.250
0.200
0.150
0.100
0.050
0.000
-0.050
-0.100
-0.150
-16 -14 -12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14 16
Wire Position (mm)
Number of points 41
Total Span (mm) 30
Scan Horizontal (X)
Other Axis (mm) 0
Save Data
Progress
0 10 20 30 40
BPM Read
intelli-pause
delay (ms) 3000
wire pos -15
Horizontal BPM pos 15.149
Vertical BPM pos 0