QBPM and Magnet Mover Status

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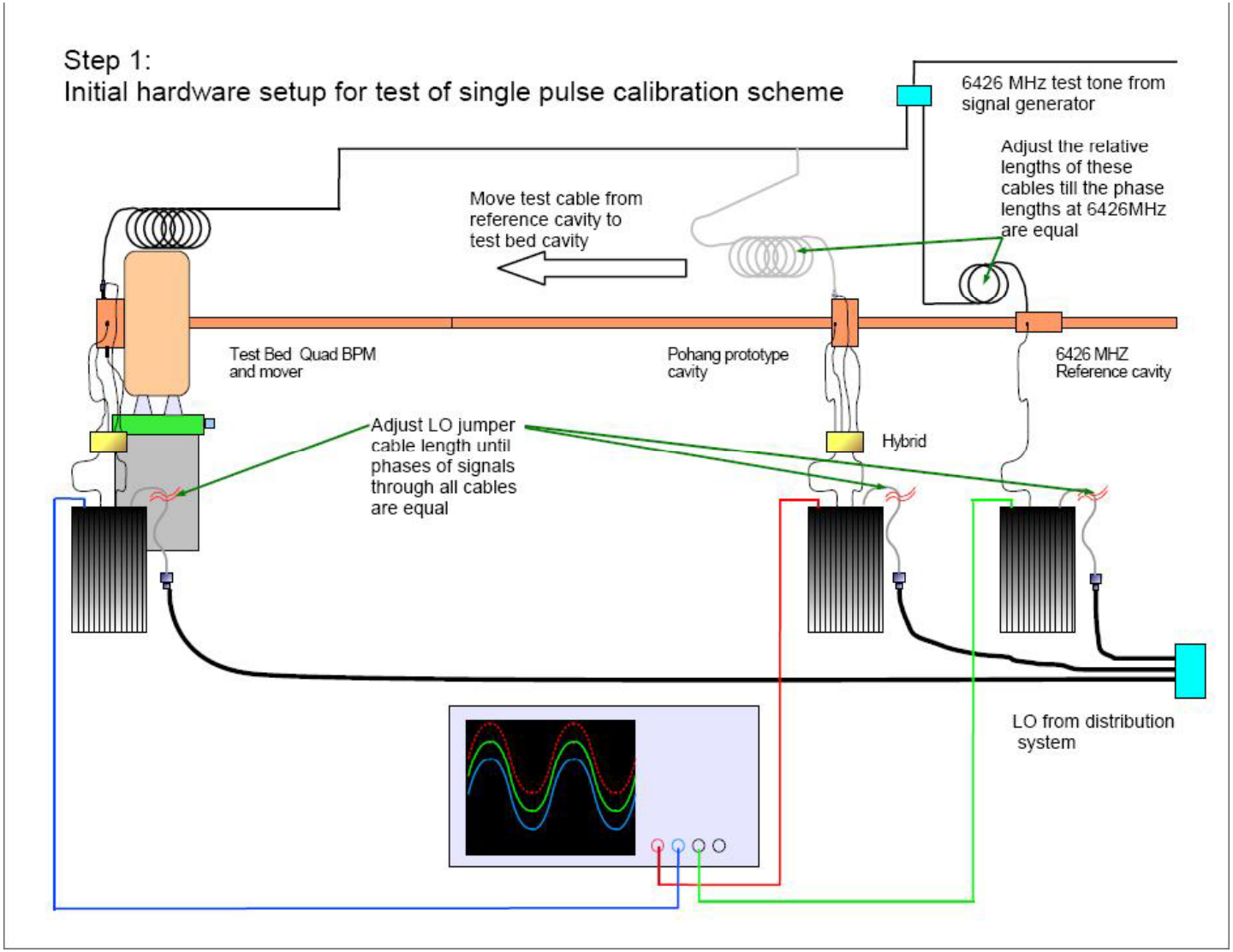
Topics

- First pulse operation
- Analysis code development
- Testing plans
- Magnet Mover Status
- Testing plans
- Combined system architecture

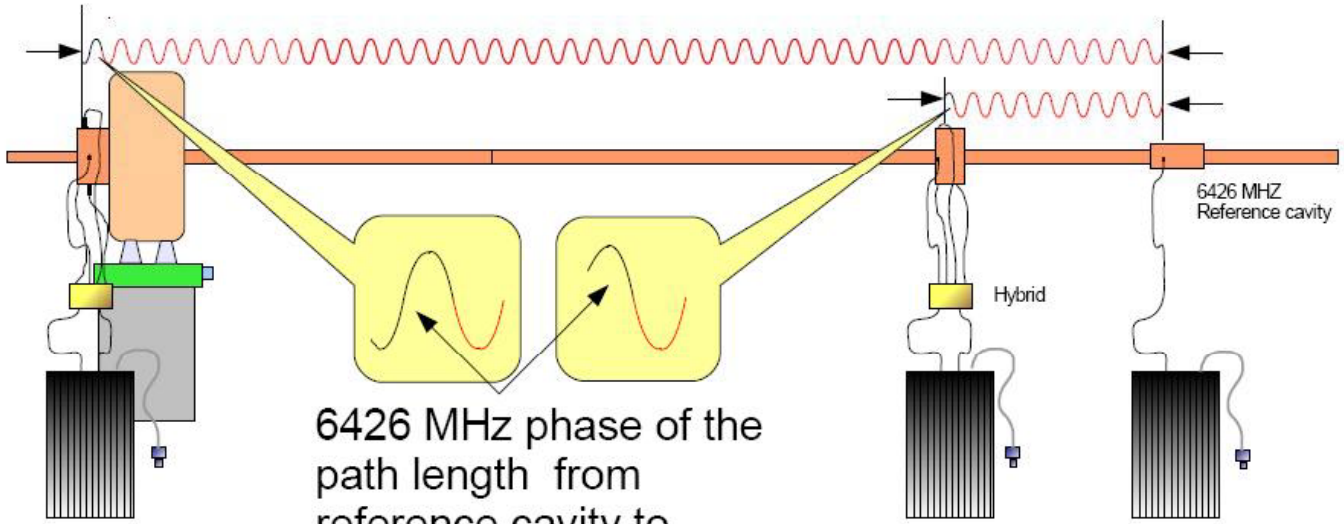
First-Pulse Operation

- Scheme has not changed
  - **Determine phase advance for each BPM during installation**
  - **Measure phase of one BPM signal from known corrector kick**
  - **Use this phase, and each BPM's phase advance as reference**
    - π phase difference indicates beam in opposite side of BPM


Step 1:
Initial hardware setup for test of single pulse calibration scheme
6426 MHz test tone from signal generator
Adjust the relative lengths of these cables till the phase lengths at 6426MHz are equal
Move test cable from reference cavity to test bed cavity
Test Bed Quad BPM and mover
Pohang prototype cavity
6426 MHZ Reference cavity
Adjust LO jumper cable length until phases of signals through all cables are equal
Hybrid
LO from distribution system

STEP 2:
Determine the 6426 Mhz phase between reference cavity and BPMs

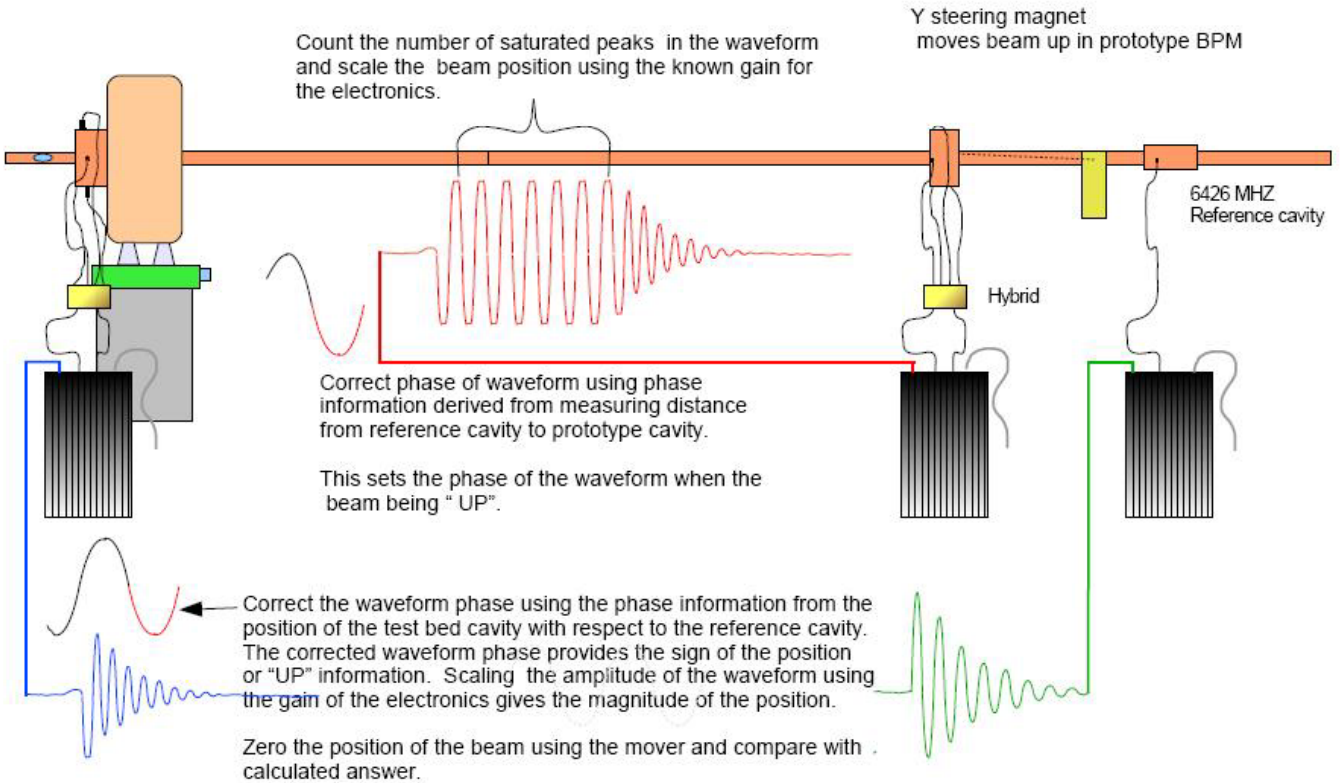
Measure the distance between the reference cavity
and the BPMs in degrees of 6426MHz
Record phase information in BPM database



6426 MHz phase of the path length from reference cavity to prototype and test bed bpms

Step 3:
Single pulse calibration scheme

Use a Y steering magnet to move the beam high in the prototype BPM



Analysis Code Development

- NanoBPM analysis routines serve as basis for ATF2 cavity BPMs
  - **Colleagues at RHUL expanding and standardizing libraries developed with NanoBPM**
  - **Libraries are largely finished**
  - **Also developing simulation framework using these libraries**

QBPM Testing Plans

- May ‘07
  - **Use test stand BPM, ATF2 prototype BPM, and reference cavity for first pulse testing**
  - **Test new libraries on NanoBPM and above set of BPMs**

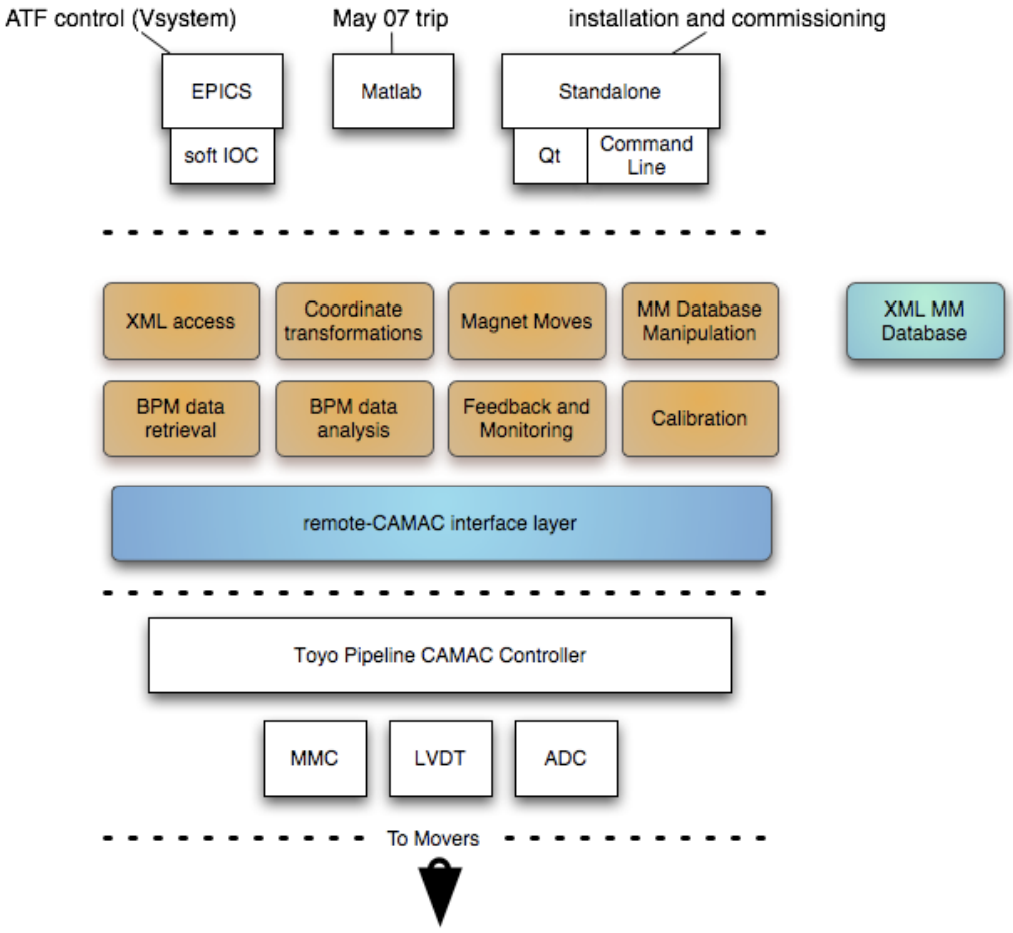
Magnet Mover Status

- Code under development
  - **Non-EPICS version should be ready for testing in May‘07 (EPICS version might be ready)**
- One mover remaining at SLAC used for operation verification
  - **Coordinate transformations**
  - **Calibration and zeroing**
- Test stand (to be) installed at ATF will be main operational test of mover control software

Plans for May'07

- Finish installation of test stand
- Do initial zeroing and test calibration
- Run BPM in full operation mode
  - **Digitize BPM pulses with phase detection and processing using SLAC/RHUL software**

System Configuration



Delivering finished product

- Most hardware is on-hand
  - **Need to order cables for BPM system**
- Final system will serve EPICS PVs
  - **RTEMS running on VME controller**
    - processes BPM signals from SIS digitizers
  - **Soft IOC running on the Toyo Pipeline CAMAC controller**
    - will process and control magnet movers
- Database architecture still under design

Summary and Discussion

- Many tests in May ‘07
- Code for both systems in development, soon to be tested
- System design and model for integration to ATF control system in progres