Synchronization needs for the ground motion experiment

Marcin Patecki
Juergen Pfingstner

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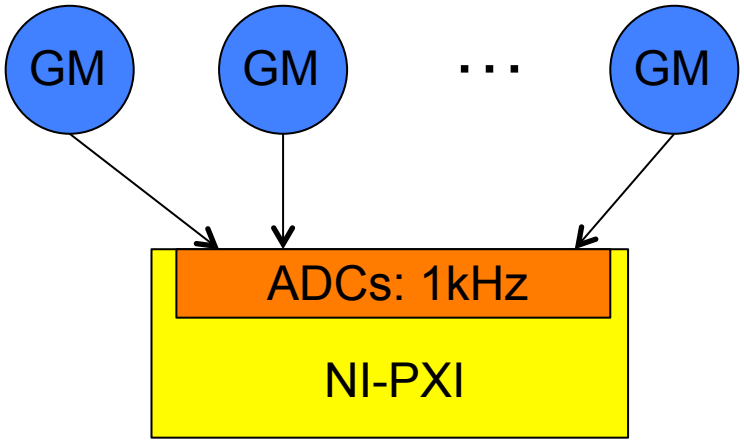
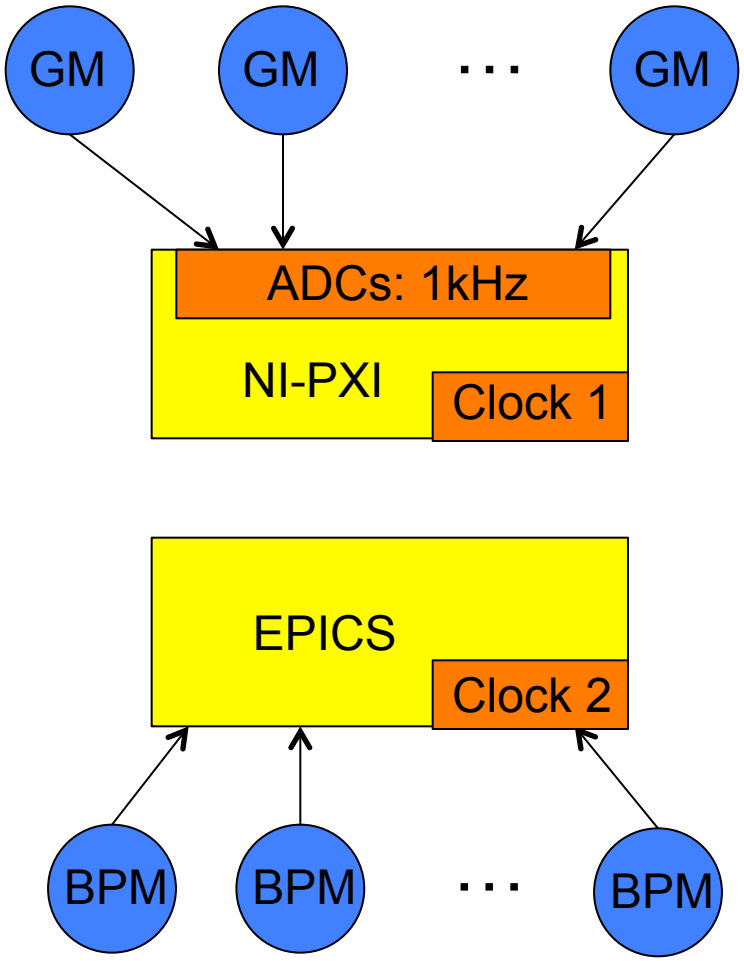
Synchronization task 1: ground motion – beam



- **Task of NI-PXI:** Record ground motion between two beam arrivals.
- **Possible solution:** Record kicker signal for synchronization.

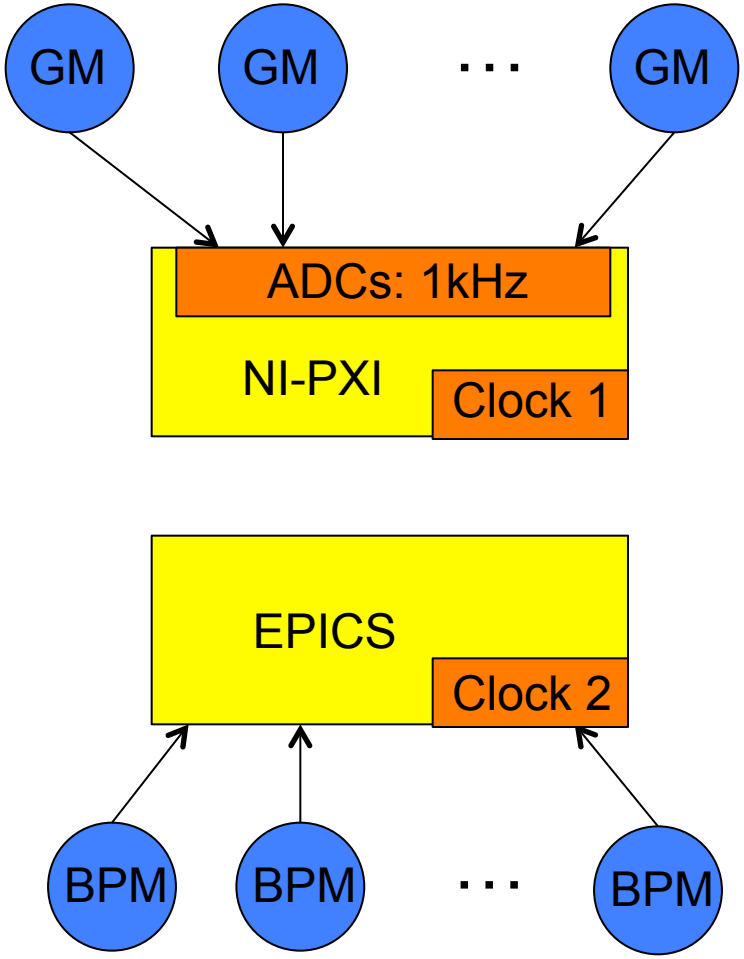
- **Necessary actions:**
  1. Providing signal/cabling.
  2. Converting NIM pulse (ns) to long pulse (several ms) that can be recorded with NI-PXI 1kHz ADCs.

Synchronization task 2: ground motion – BPM



- **System task:** Data are acquired via NI-PXI system and via EPICs and are then correlated.
- **Potential problem:** The clocks of the two systems could be not synchronized.
- **Old solution:** Rely on NTP distributed through Ethernet.
- **Proposed solution:** Provide to NI-PXI a hardware signal that shows the beam presence. Then switch the beam on/off to check the synchronization.

Synchronization task 2: ground motion – BPM



- **Necessary actions:**
  1. Determine which signal could be used.
  2. What type of signal is and how can it be recorded with the NI-PXI ADCs (conversion necessary)?