PSB LLRF notes & possible layout

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LLRF possible layout

- Initial HLRF+LLRF kickoff meeting in June 2017.

- LLRF layout to start the discussion & feasibility study
  - ❑ one board / Finemet system → 5 boards / ring
  - ❑ h=1..10 harmonics controlled per Finemet (covers 1..18 MHz)
    - ➢ Includes C16-style blowup
    - ➢ Does not include cavity impedance compensation @20 MHz
  - ❑ **Up to** 5 harmonics per Finemet system with voltage/phase control. The others servoed to 0 V.
    - ➢ 30 functions / LLRF system only for voltage/phase control
    - ➢ Servoloops in FPGA for higher BW
  - ❑ Feasibility question of 10 h / Finemet + servoloops in FPGA: we might be able to answer it next year

LLRF notes

- One gap relay/cell. Will not (cannot) be controlled in PPM
  - ❏ Different from current implementation in Ring4 Finemet, LEIR and ELENA
  - ❏ LLRF will not control the gap relay status
  - ❏ LLRF will know before each cycle how many cells are available / cavity
- Fixed (not sweeping) clocking frequency operation.
  - ❏ Different interface with new PSB TFB needed
- Started production of 30 new LLRF motherboards.
  - ❏ (some) contingency in case >5 boards/ring are needed

LLRF notes – cont'd

- Today we start looking at beam-based requirements.
  - ❑ Desired final specs (not expected today) :
    - ❑ complete carnet of beams including required harmonics + voltages + RF gymnastics.
    - ❑ When the beams / intensity flavor of a beam will be required
- In the (near) future we should also discuss the system operation (ex: distributed cavity concept) .

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