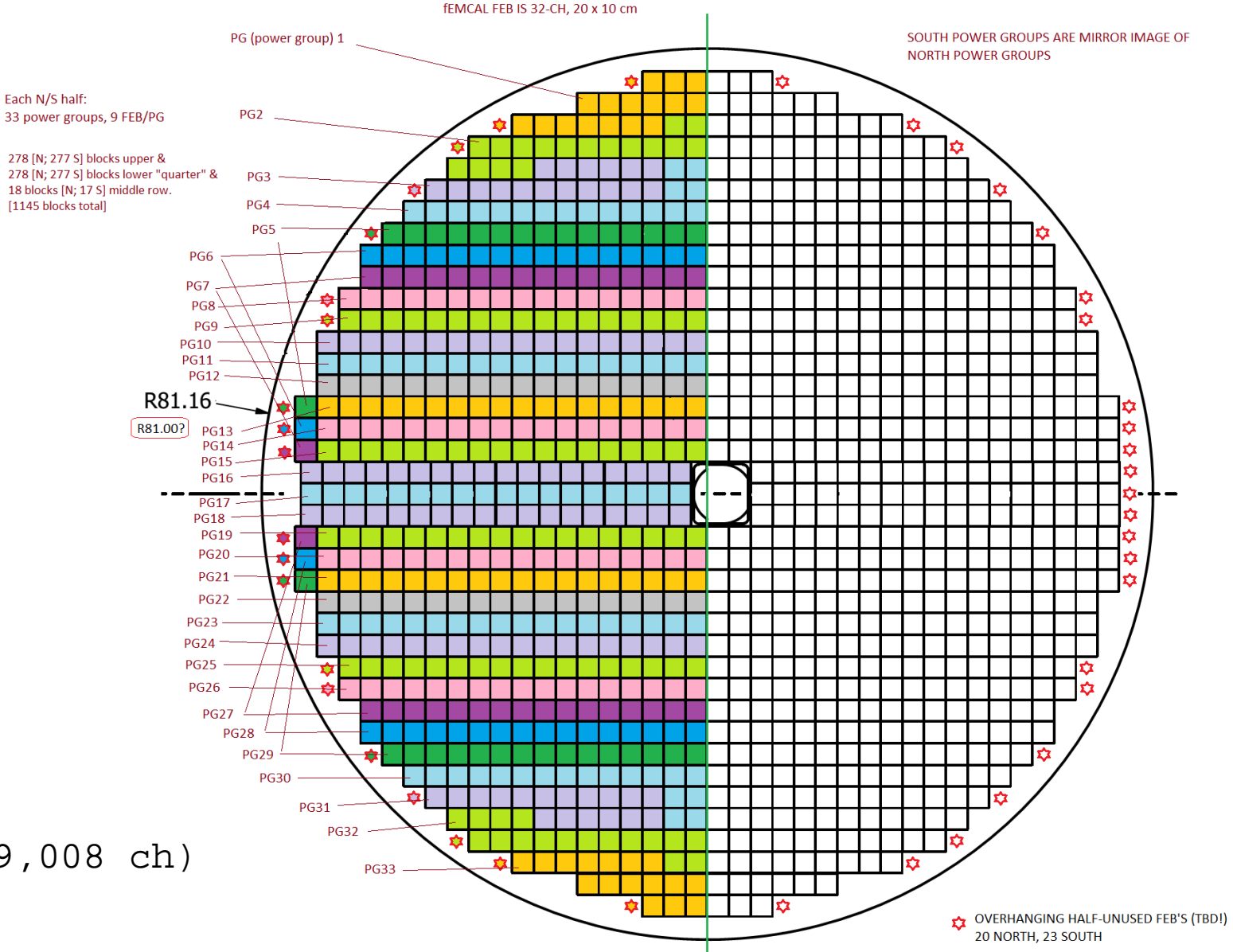


eRD109 COTS Waveform Readout FEB – update Nov. 7, 2024

G. Visser, Indiana University



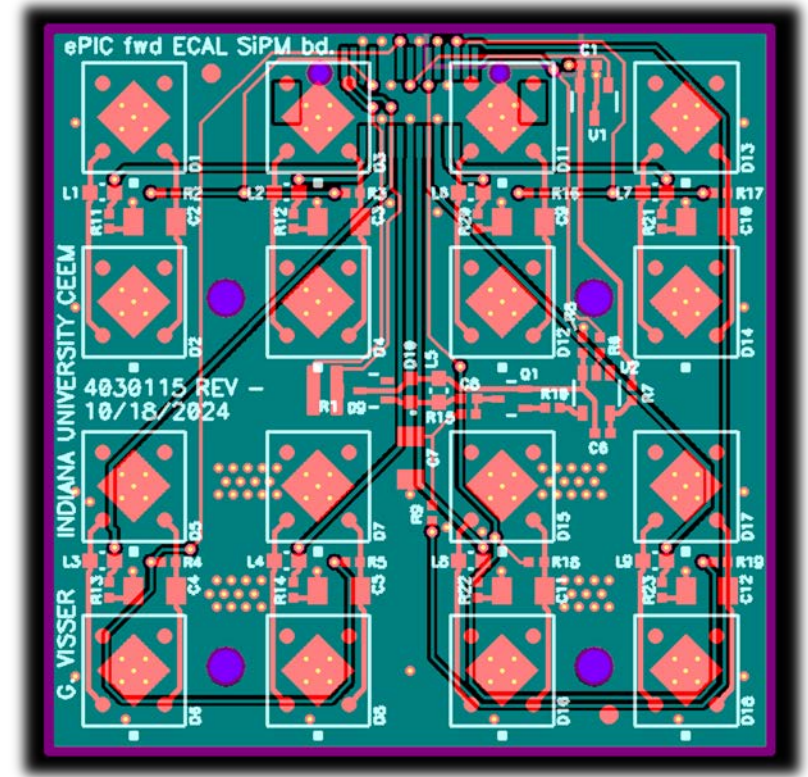
Each N/S half:
33 power groups, 9 FEB/PG

278 [N; 277 S] blocks upper &
278 [N; 277 S] blocks lower "quarter" &
18 blocks [N; 17 S] middle row.
[1145 blocks total]

fwd ECAL:
1145 blocks
594 FEB (18,320 ch
or maybe 19,008 ch)
38? RDO

Progress since last report

- Fwd ECAL SiPM board in fab (ETA 11/20, 32 boards, \$64.53 ea.)
 - Switched to filled/cap-plated via process (needed on FEB anyway, and better for SiPM thermal pads); also added thermal connectors for SiPM board to water line (use to be evaluated)
 - Prototype assembly at UCLA shop starting in December
 - SiPM PCB production quote \$13.85 @ 5,000
- Resuming the schematic and layout design for fwd ECAL FEB
 - Small mechanical change (detector block design was misunderstood)
 - Currently (still) working on ADC circuits and routing signals from preamp channels to ADC's
 - Yet to do: bias, FPGA, power supplies
- A 2 channel hand-assembleable analog prototype to use with the Polarfire evaluation board is under design in parallel; layout based on real FEB where possible
 - This will be built and tested first, including with detector block and SiPM board
 - Also to serve a test article for radiation tests on opamps & ADC, with test I/O to isolate components for test
 - Goal is still to order that before end of year
- Finalizing cable/services plan, to discuss w/ project engineers next week



Fwd ECAL SiPM board (4 channels)