HCAL test-beam preparations

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Movable Stage & Basic Installations

done:

- mechanics ✓
- stage power & detector power ✓
- readout cables ✓
- ECAL installation ✓
- DAQ installation ✓
- HCAL module installation test ✓

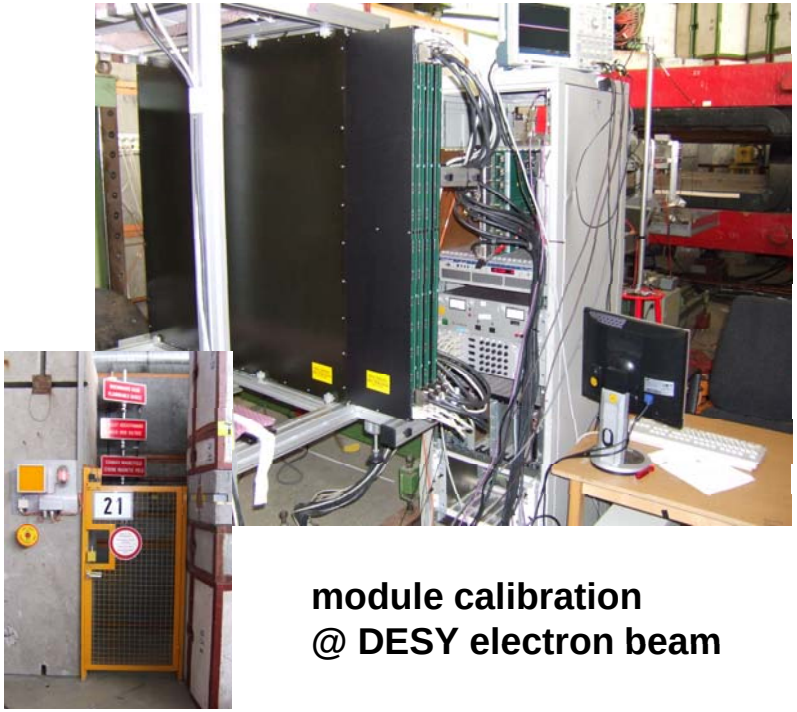
in progress:

- HCAL power cables **ASAP**
- HCAL power distribution **ASAP**

to be done: till May 25th

- stage steering by slow-control
- moving test with full installation

Modules



module calibration
@ DESY electron beam

modules ready & calibrated:

- 3-23 & 25-31 & 34-35
  = 27 fine & 3 coarse ✓

some channels to be repaired:

- 24 & 32

in production:

- 33, 36 & 38

tile-test:

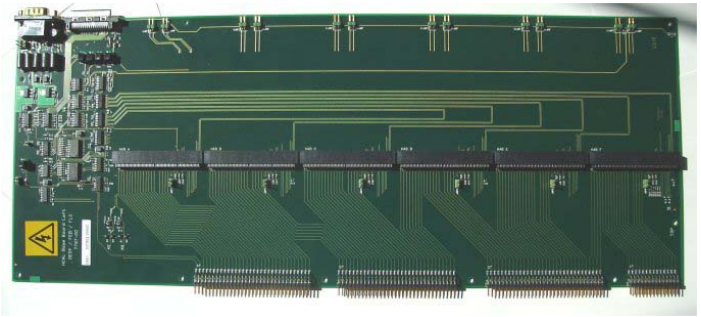
- 37

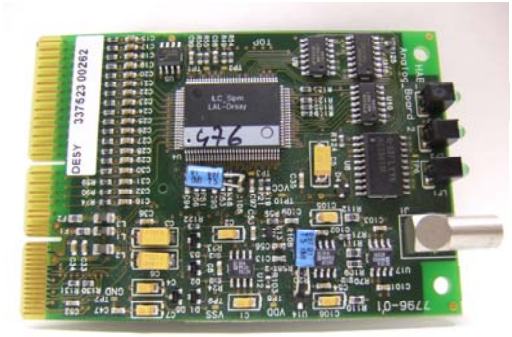
till May 25th

reworked:

- 1 & 2 till June 22nd

Readout-Electronics





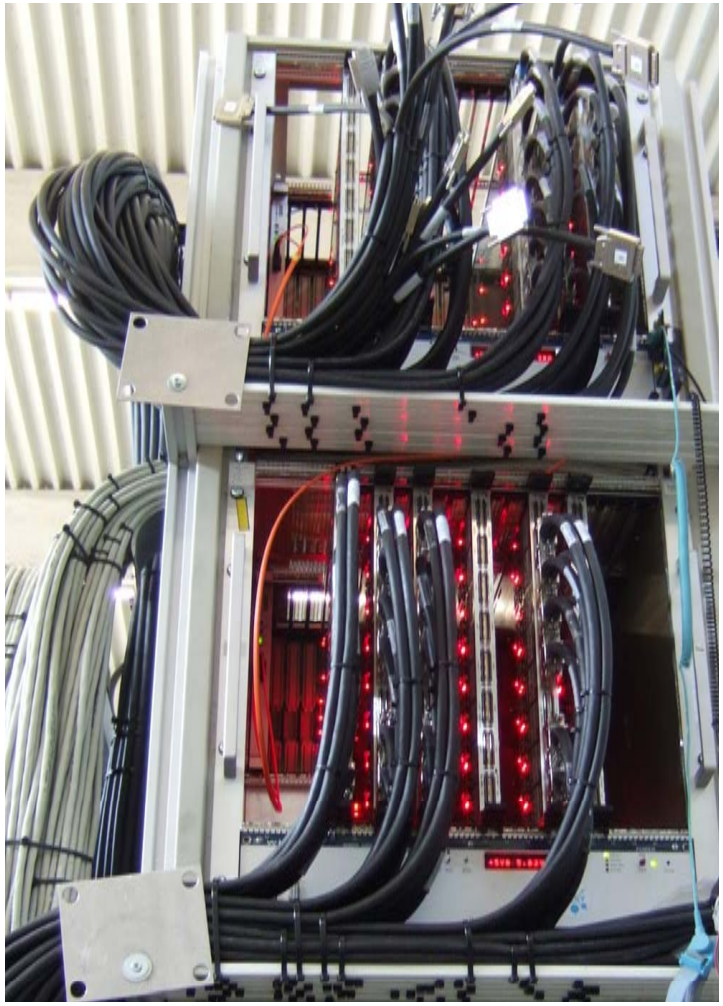
done:

- baseboard repair ✓
  (TCALIB transmitter, fuses, SCSI connector)
- modify remaining HABs ✓
- function check of all baseboards & HABs
  - TCALIB ✓
  - coherent noise ✓
  - DAC loading ✓
  - noise for both operation modes ✓
- repair HABs which failed tests ✓

We have enough working electronics for the CERN test-beam!

But not many replacement baseboards available.

DAQ



done:

- CRC installation ✓
- cabling ✓
- standalone noise tests ✓
- ECAL-only readout test ✓
- HCAL-only noise tests ✓

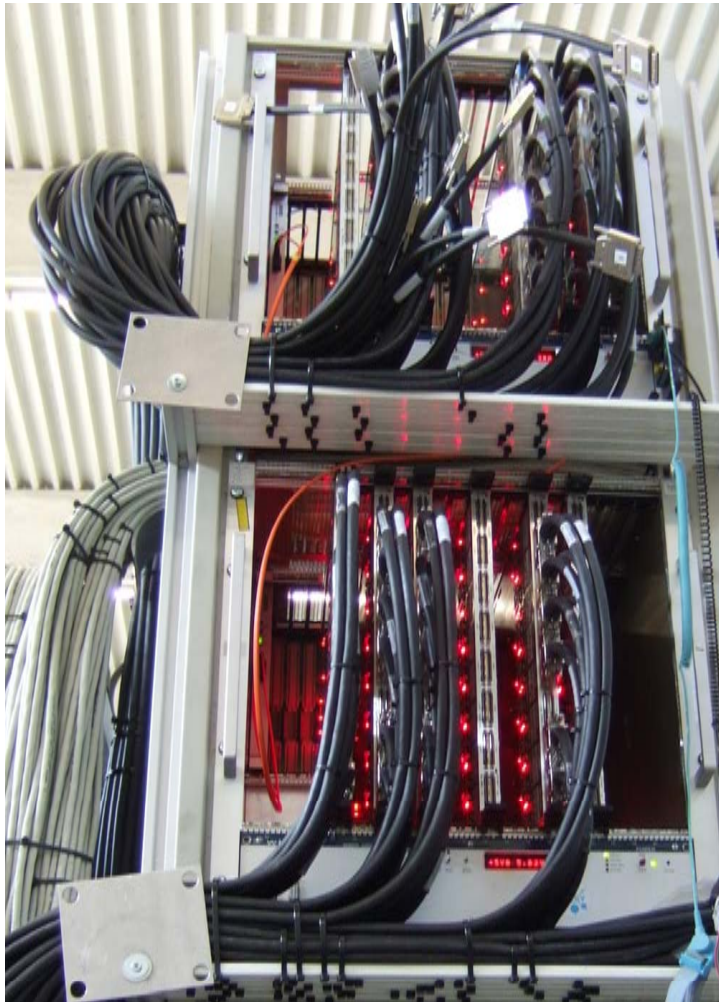
in progress:

- CRC tests (details later)
- detailed readout & noise tests

to be done:

- combined readout

DAQ-Software



in progress:

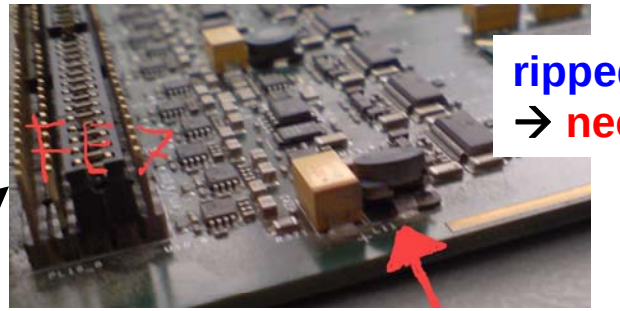
- change SR-loading for coarse modules (+ converter update)

to be done:

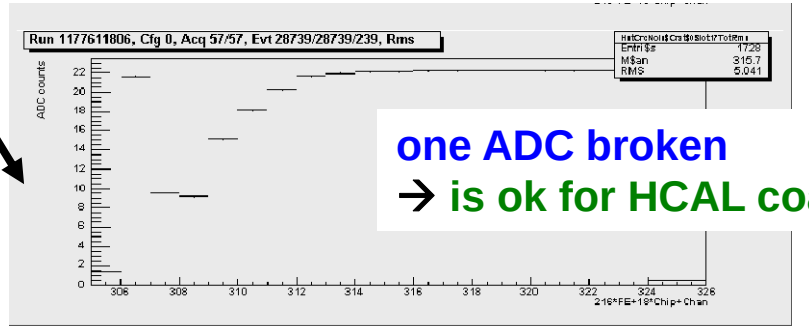
- T-monitoring readout test
- movable stage integration
- test of full readout chain

CRC – tests @ DESY

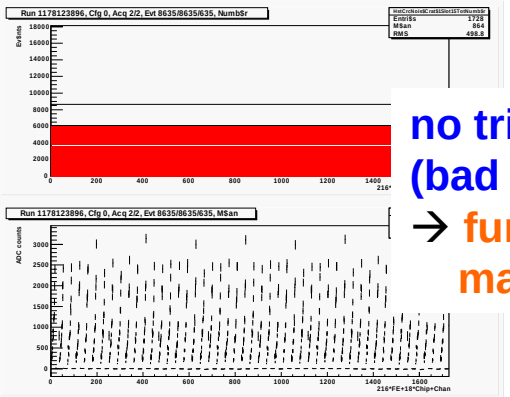
CRC	Post-CERN	Post-Matt	DESY
SER003	0	8	✓
SER004	3	Dead	
SER005	7	8	✓
SER006	8	8	7
SER007	5	8	7¾
SER008	3	7	×
SER009	???	???	
SER010	6	6	
SER011	5	8	✓
SER012	6	8	✓
SER013	8	8	✓
SER014	7	8	✓
SER015	6	8	✓
SER016	5	8	✓
SER017	7	8	✓
SER018	8	8	✓



ripped off component
→ needs repair

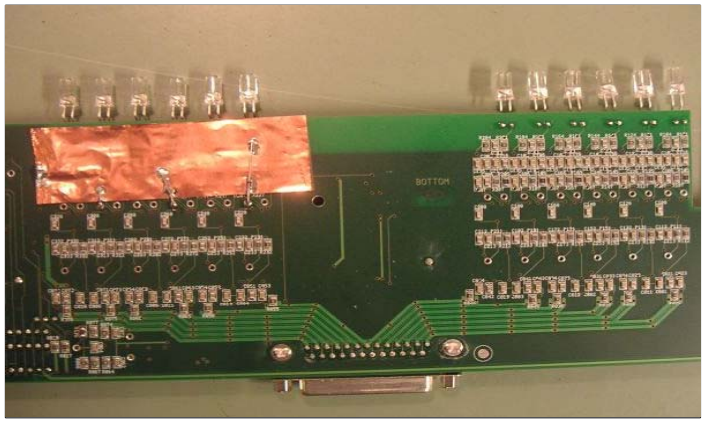


one ADC broken
→ is ok for HCAL coarse modules



no trigger distribution to slot 15 (bad readouts)
→ further tests necessary
may work as slave

CMB



in progress:

- PIN shielding & pickup noise studies

to be done:

- small repairs (bend PIN & LED)
- PIN modifications (dep. on tests)
- installation
- grounding
- SiPM/ electronic pickup noise studies

Still a lot to do and work just started!

Software

fast calibration chain

- gain
  fitting software ready ✓
  histo-software under development
- MIP
  Code not ready to run unattended
- IC ✓
  done

data quality software

as monitoring of beam and detector stability from run to run

to be done:

- MIP stability
- noise level
- reconstructed energy
- secondary contamination
- …

Data Processing Test

take data with as much detector as we have

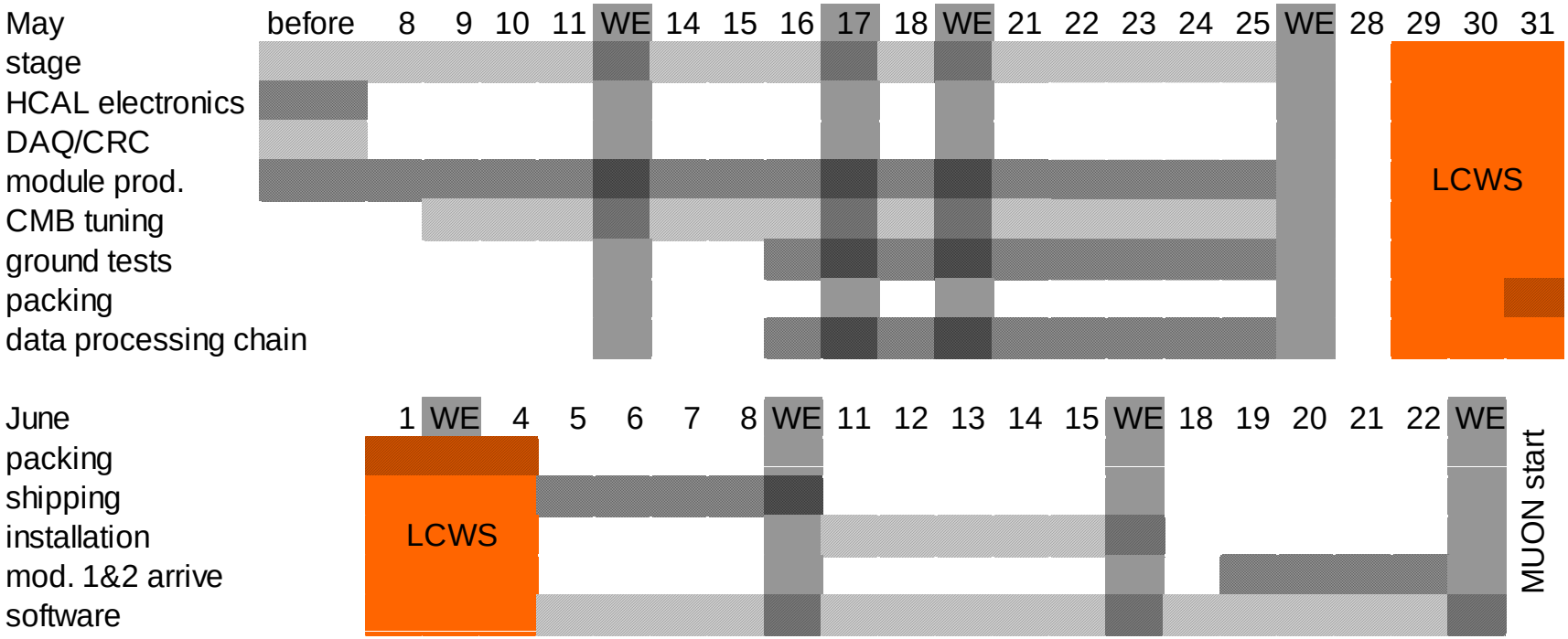
- gain & IC
- stage-scan
- ECAL & HCAL together (noise study)

do a praxis test of full data chain

- conversion
- online monitor
- fast gain & IC & MIP processing
- data quality analysis

Data chain (& hopefully fast analysis) have to be ready with the detector on May 25th

Schedule


May
before 8 9 10 11 WE 14 15 16 17 18 WE 21 22 23 24 25 WE 28 29 30 31
stage
HCAL electronics
DAQ/CRC
module prod.
CMB tuning
ground tests
packing
data processing chain
LCWS
June
1 WE 4 5 6 7 8 WE 11 12 13 14 15 WE 18 19 20 21 22 WE
packing
shipping
installation
mod. 1&2 arrive
software
LCWS
MUON start