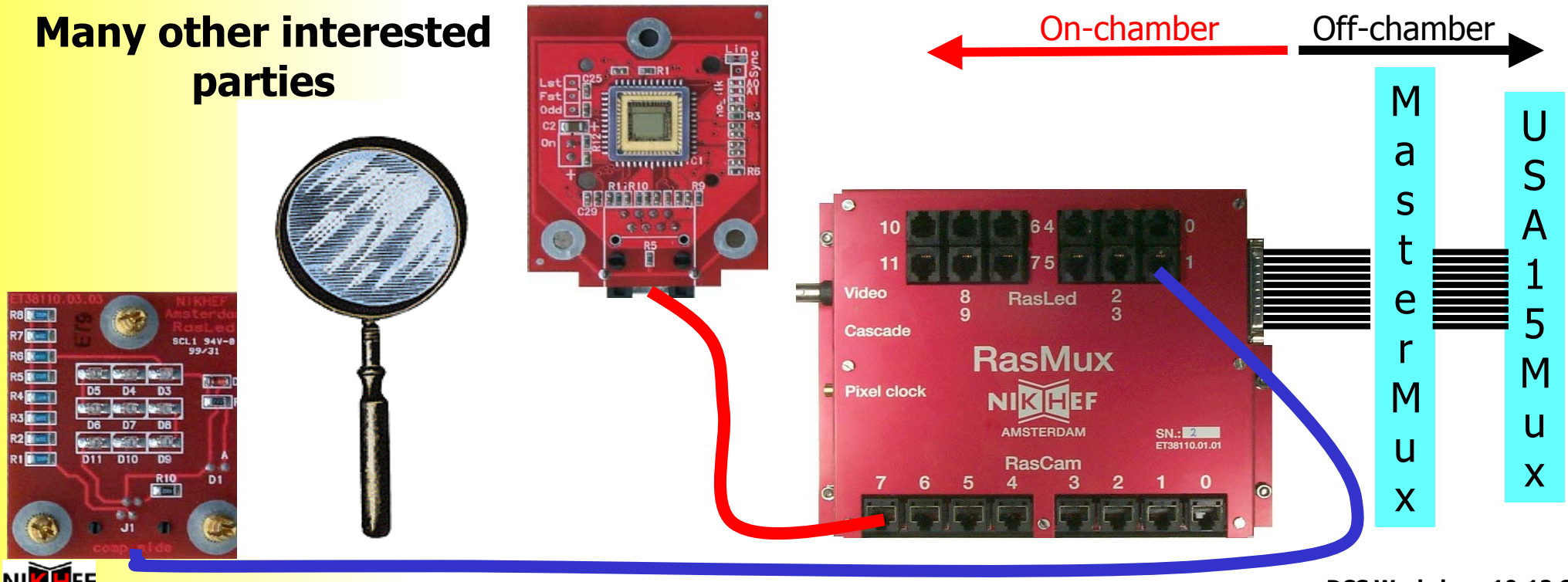
MDT Detector Controls

- Gas (CERN)
- High-voltage (Italy)
- Alignment (NIKHEF/Saclay)
- Other monitoring (NIKHEF/Saclay):
  - Temperature
  - B-field
  - Front-end electronics

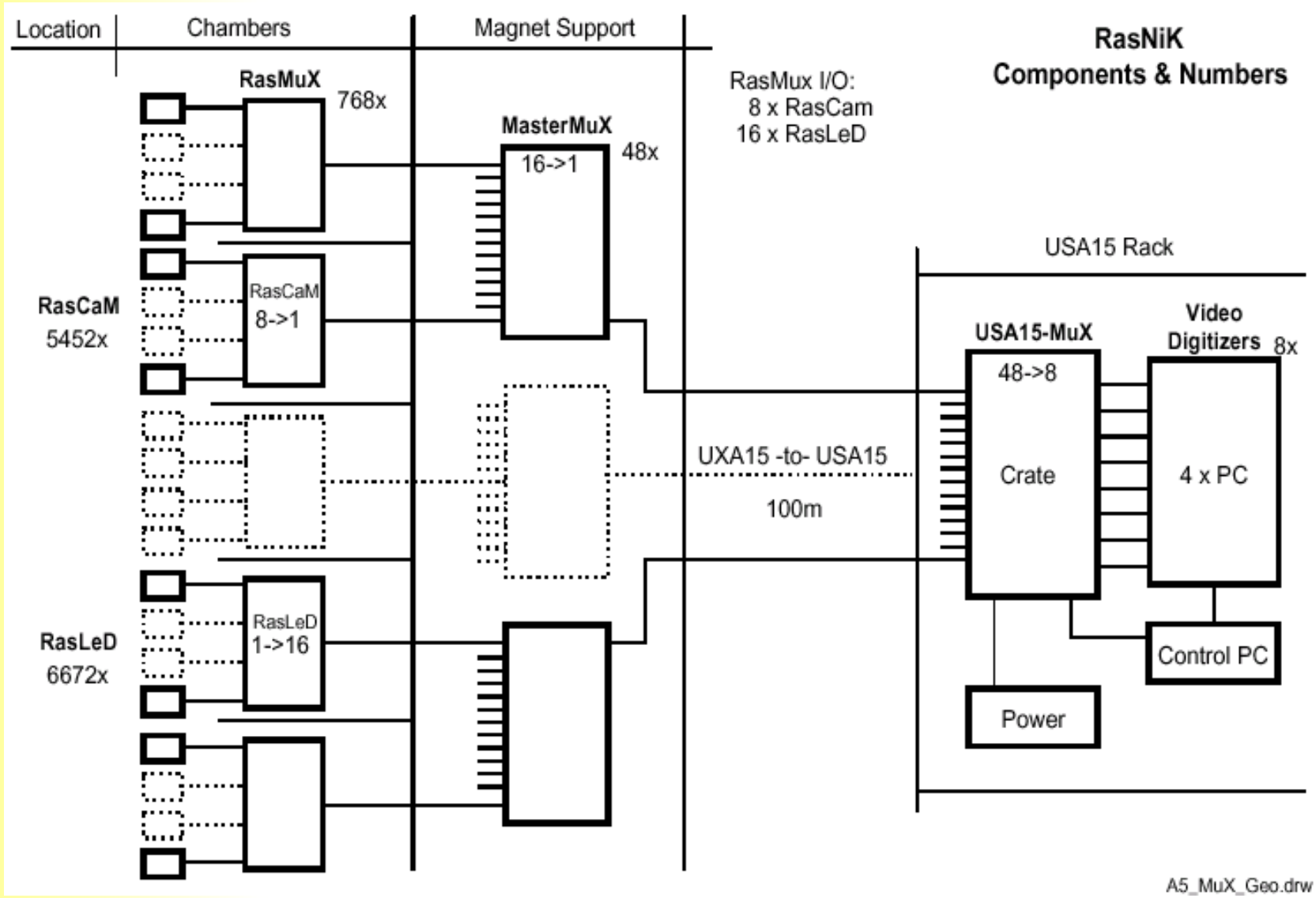
MDT DCS: Alignment (≈6000 systems)

Key issue: RASNIK 3-point monitor
Status: Sensors delivered to MDT sites; DAQ prototyped
Outstanding: Radiation tolerance of the multiplexers
Difficulties: Cost (mechanics!) & lens quality

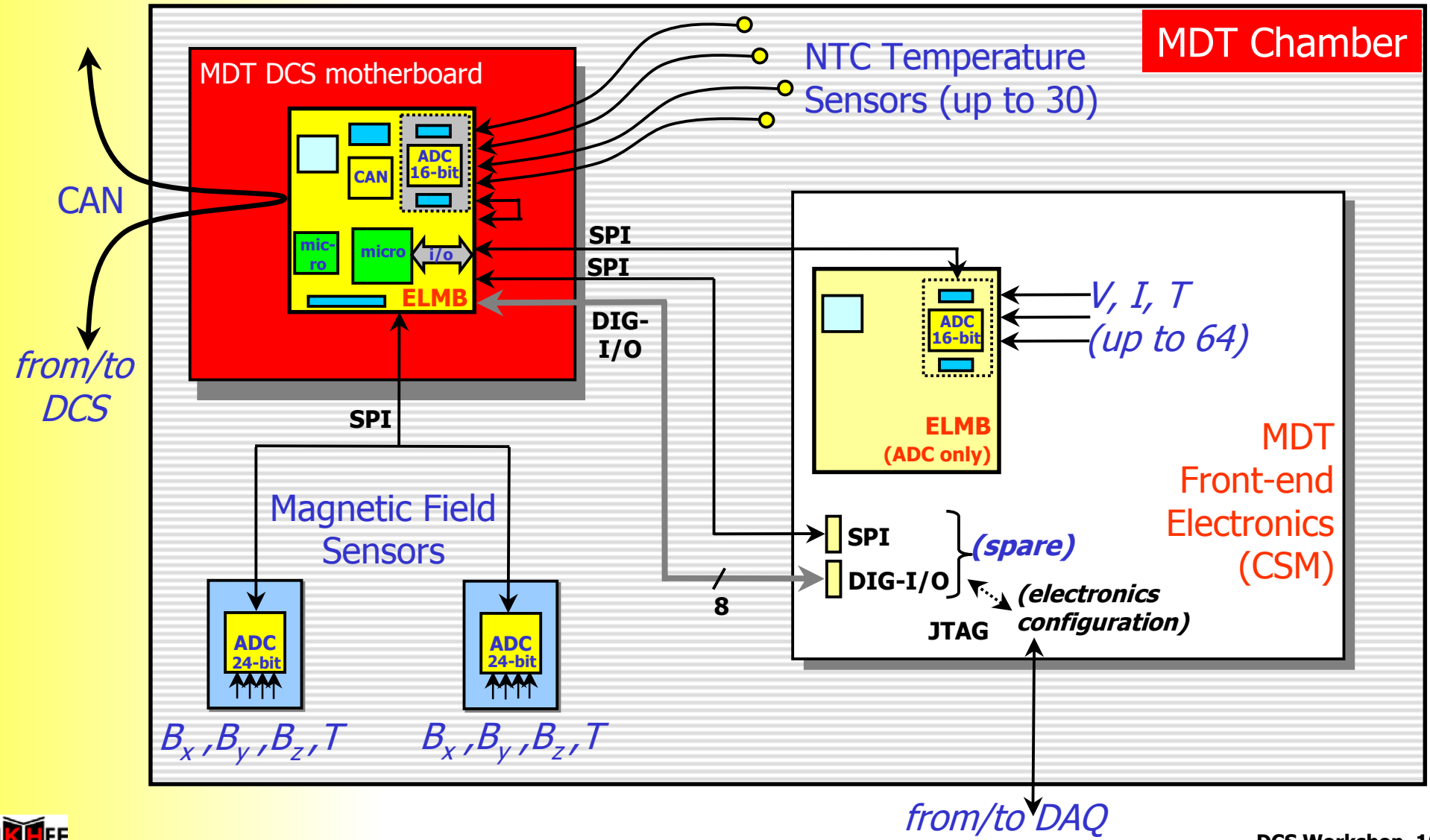
Many other interested parties



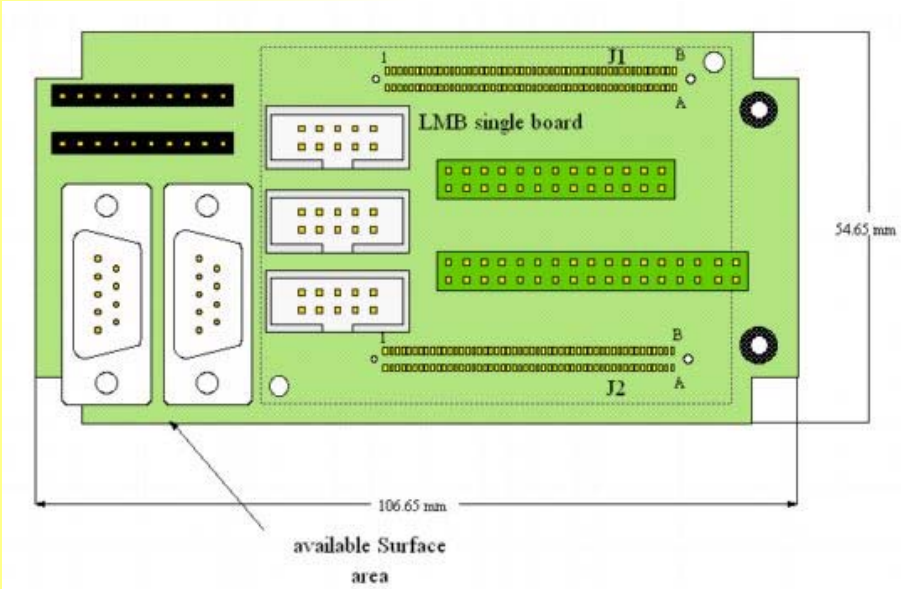
MDT DCS: Alignment DAQ

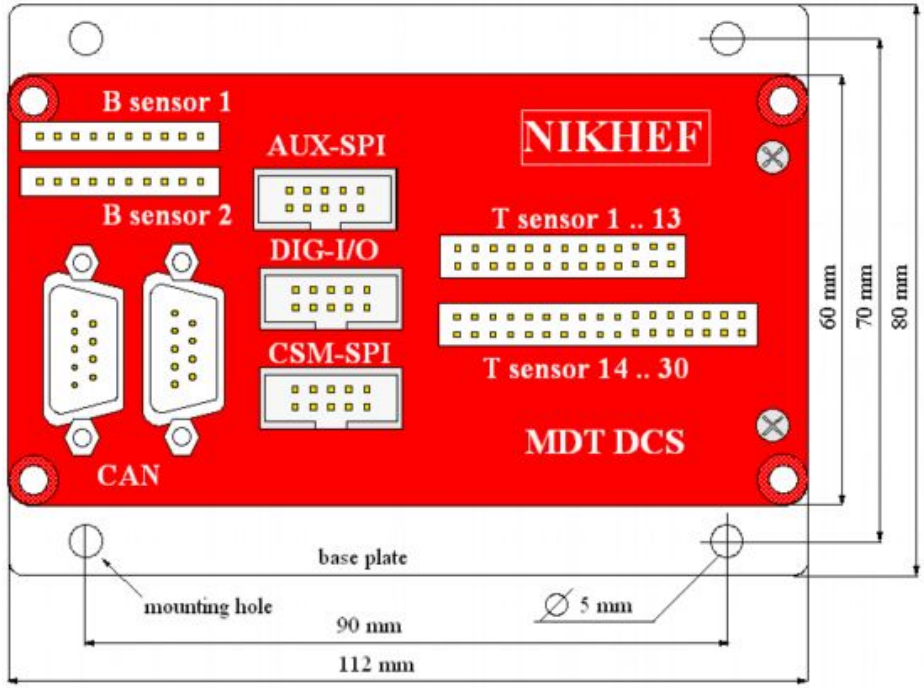


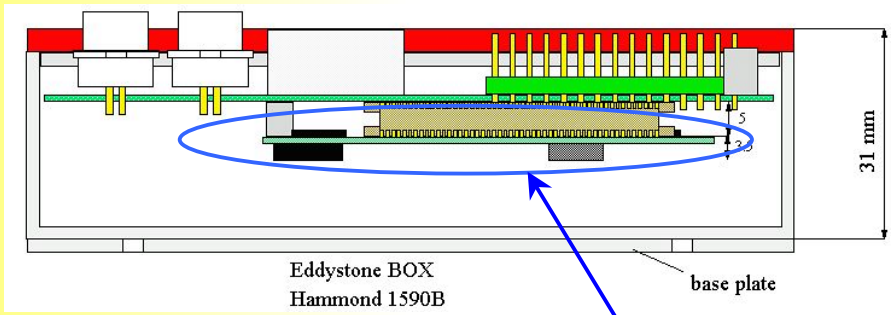
MDT DCS: Monitoring (≈1200 nodes)



MDT DCS: Motherboard + housing







vertical cross-section

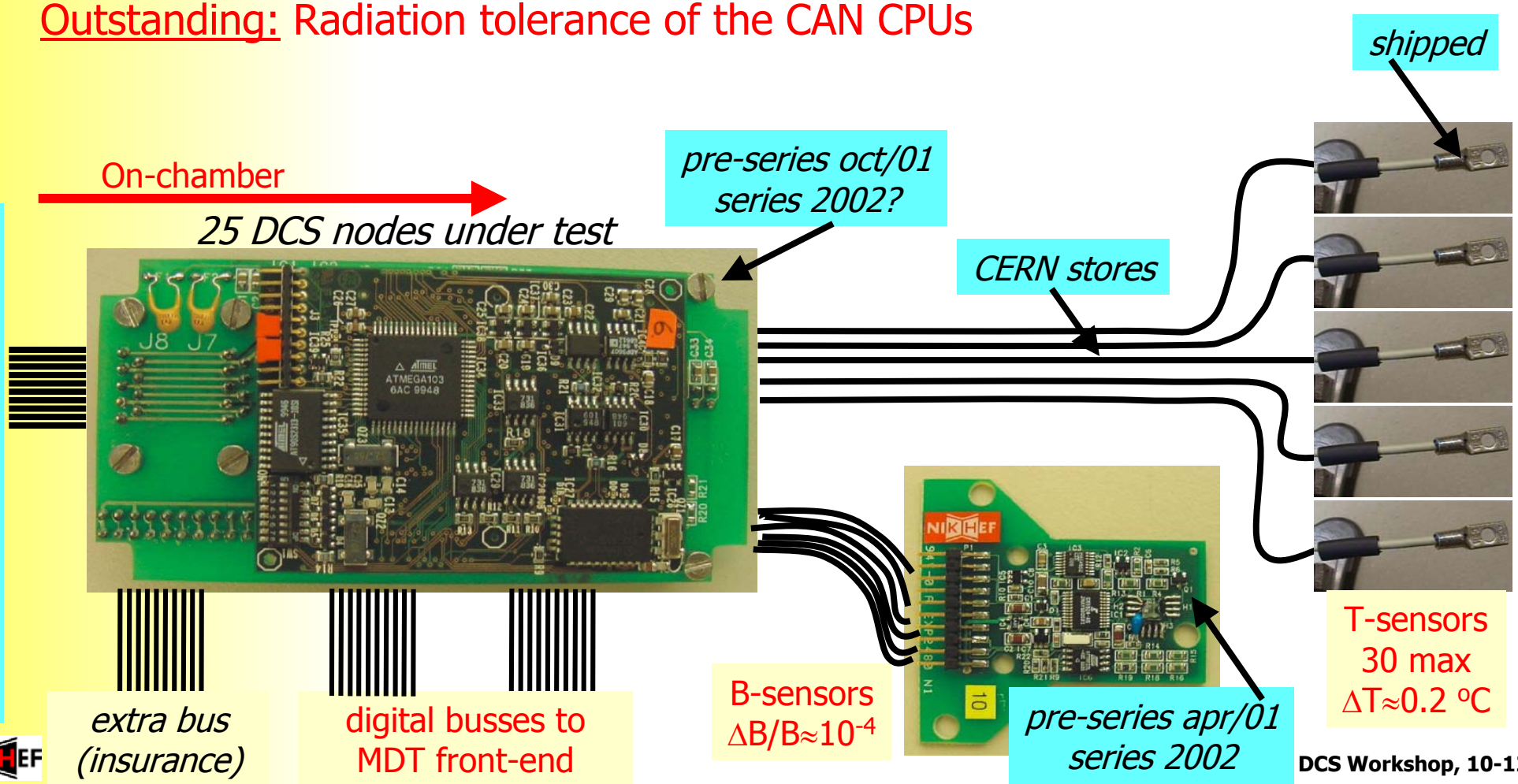
ELMB

* 25 pieces assembled/tested
  (for distribution within MDT collaboration)
* On-board software finalized
  (first version…; preliminary doc available)

MDT DCS: Monitoring

Key issue: Modular: CAN CPU with many sensor types
precise Hall B-sensors; cheap T-sensors, …
Status: Being delivered to MDT sites
Outstanding: Radiation tolerance of the CAN CPUs

Used also by:
D0, Saclay, CMS(?), LAr (H8), …



MDT DCS: Conclusions

- Alignment:
  - On-chamber hardware exists
    - System extensively used during chamber construction and in chamber tests
  - Radiation tests still in progress (so-far so-good)
  - Off-chamber read-out scheme + system functionality available
    http://www.nikhef.nl/pub/departments/et/experiments/atlas/rasnik/rasnik_rev1.pdf)
    - Prototype studies in progress (not too urgent)

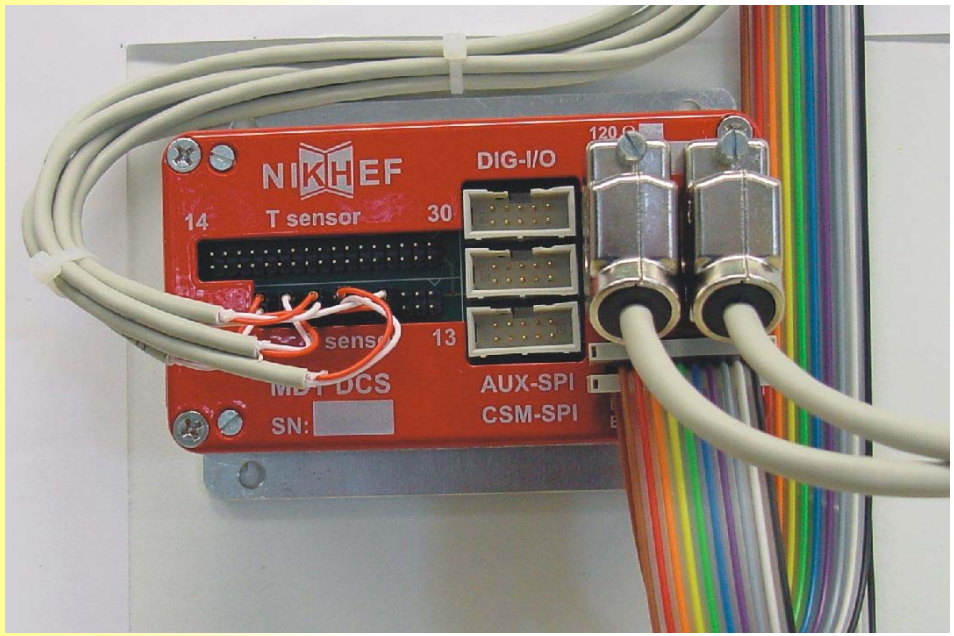
- Other monitoring: T, B-field and Front-end electronics
  - On-chamber hardware exists (ELMB, T, B, …)
    - T functionality used extensively during chamber construction (also RH, P, …)
    - B functionality used in barrel toroid tests and in D0 experiment
  - Radiation test results available(?) → ATLAS decision required
  - Off-chamber read-out scheme available
    - (see talk by Jaap Kuijt)
    - Test-beds under development (e.g. cosmic ray stand @ NIKHEF)

MDT DCS: today's issues

Alignment:

- *cabling mockup*
- *radiation issues*
- *software*

⇒try to round off in 2002!
(mostly higher level DAQ)



B, T and front-end DCS:

- *cabling mockup*
- *radiation issues*
- *software*

⇒try to round off in 2002!
(mostly higher level DAQ)