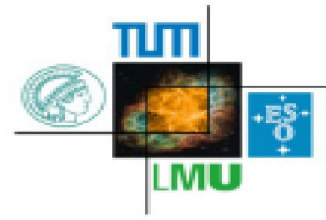




DAQ Integration in FOPI

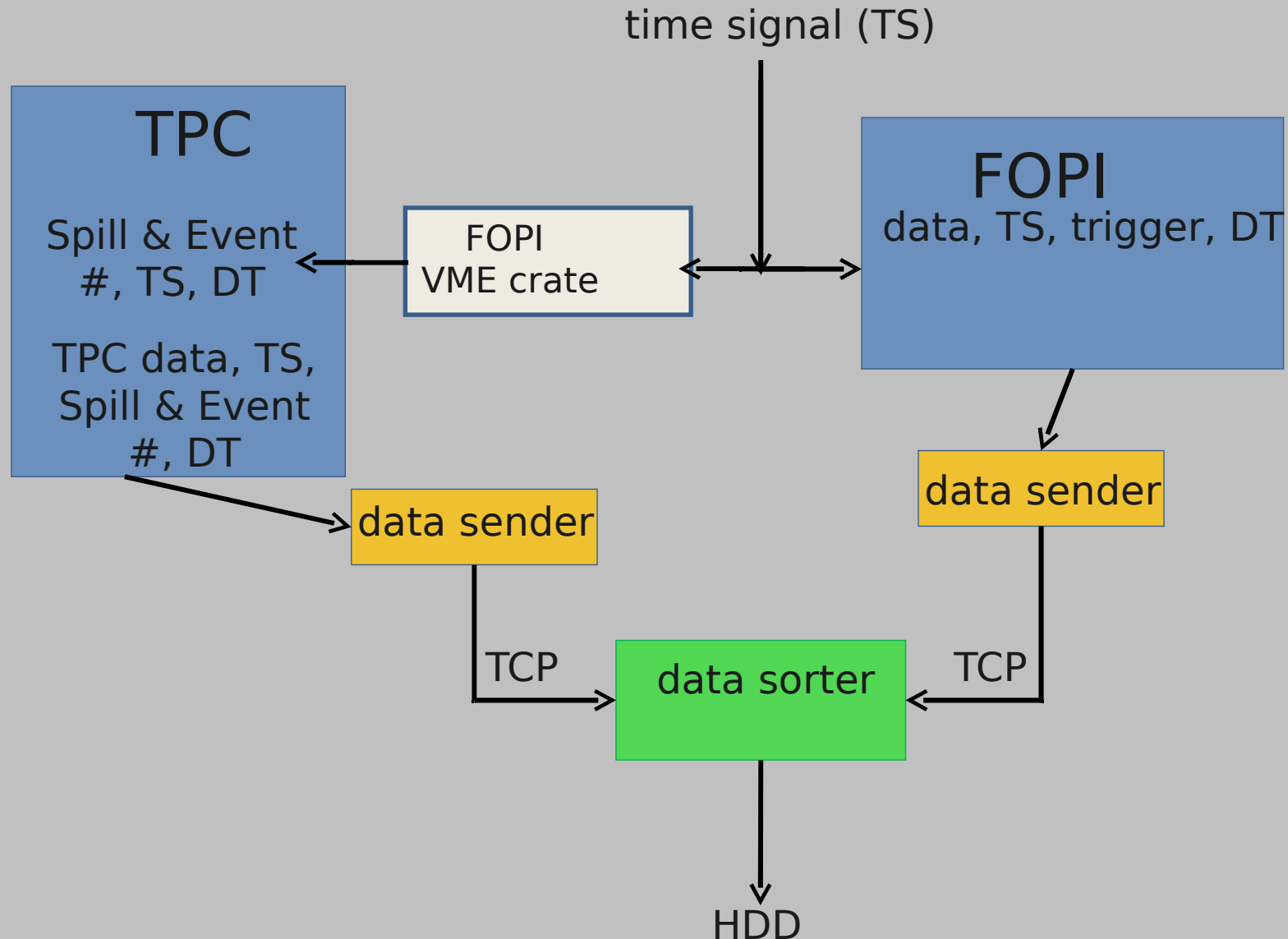
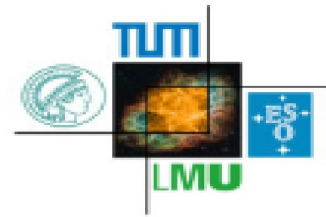


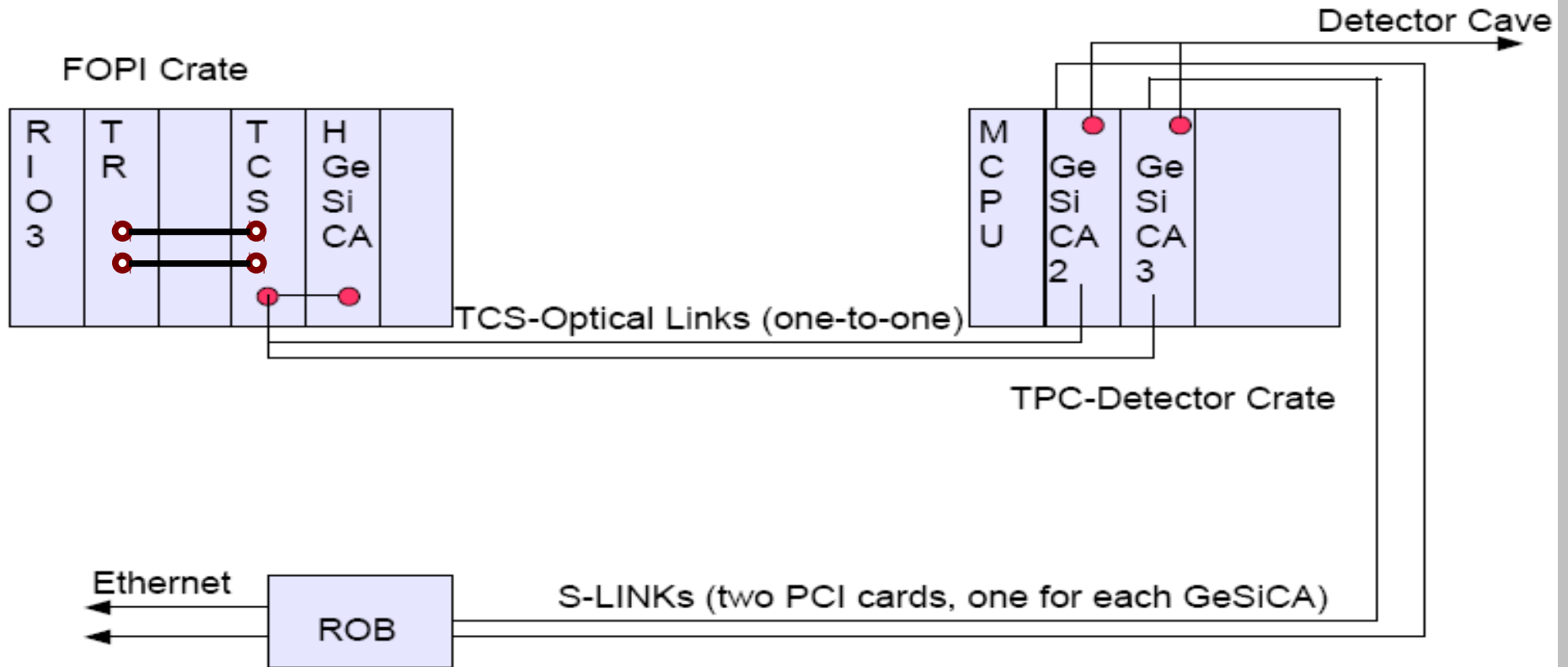
- The concept of the integration of the GEM-TPC DAQ in FOPI
- Hardware diagram
- Status of the different parts
- Plan and time-schedule





The Concept of the Integration

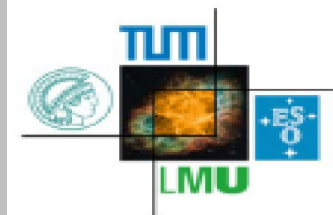




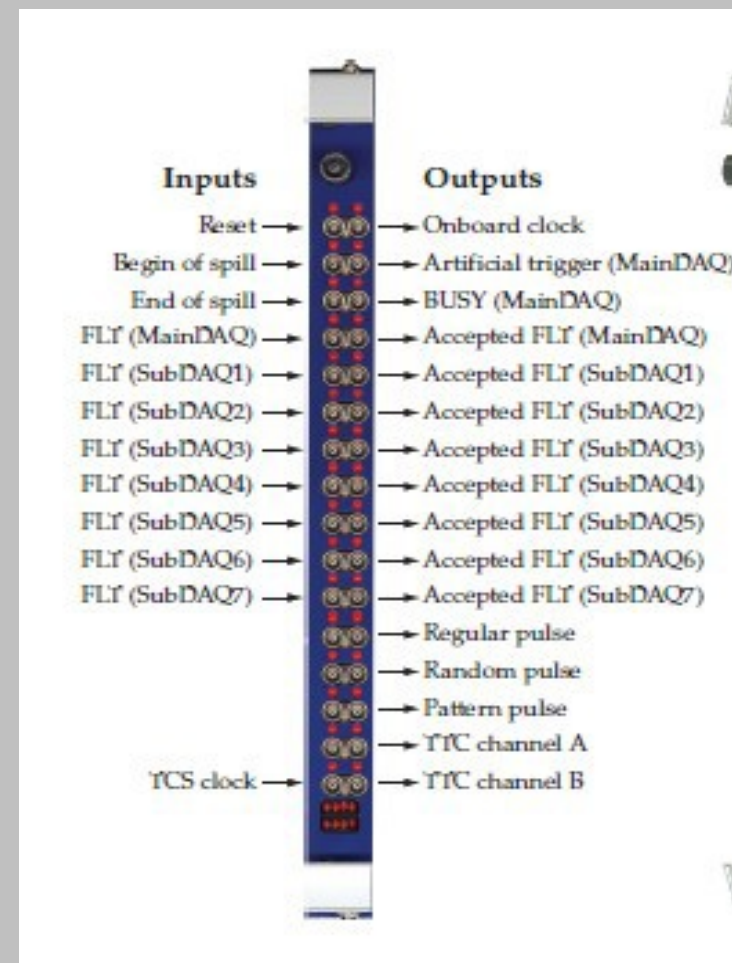
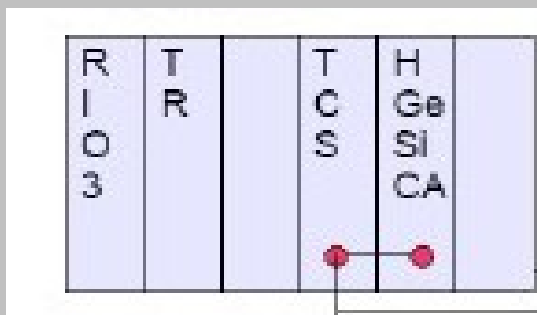
Spill signal → 1s before start beam
 Sorting → by spill & evt #
 SOR, EOR → write to TCS via VME



MBS VME Crate

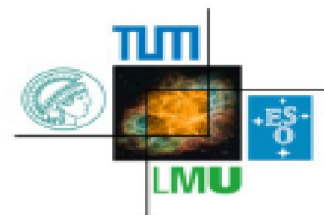


- › VME access using CES-RIO function find_controller()
- › Program to load firmware on TCS and GeSiCA
- › Configuring and initialing scripts
- › “Polling” GeSiCA Status Register
- › Control signals are assigned to TCS, accepted trigger and busy returned
- › Event header read back on RIO

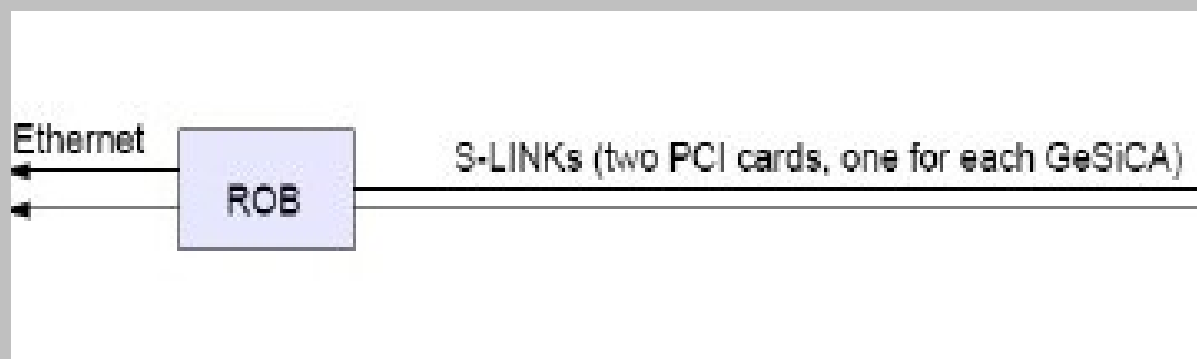




Spill buffer and Data Sender



- › S-Link spill buffer on PC, directly connected to the GeSiCA's
- › TCP-based data sender, “block” transfer up to 32 KB, sorting by spill No. and event No.

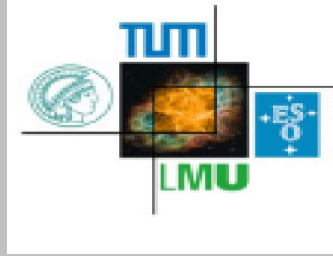


```
fcusanno@uc206: ~/GSI-DAQ/datasender
File Edit View Terminal Help
try to connect to node saturn.e12.physik.tu-muenchen.de on port: 6500
...connected!
protocol buffer sent, first word = 1
protocol buffer sent, second word = 16384
buffer send, first word = 8
second word = 65546
3-rd word = 620757006
4-th word = 1
buffer send, first word = 178
second word = 65546
3-rd word = 620756993
4-th word = 86
buffer send, first word = 152
second word = 65546
3-rd word = 620756993
4-th word = 169
buffer send, first word = 122
second word = 65546
3-rd word = 620756993
4-th word = 250
buffer send, first word = 82
second word = 65546
3-rd word = 620756993
4-th word = 326

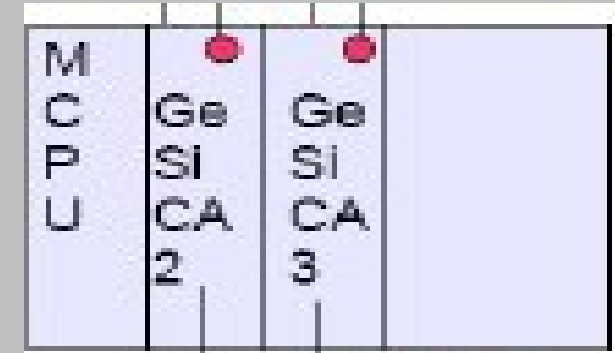
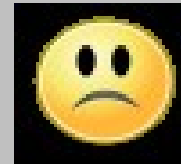
fcusanno@uc206: ~
File Edit View Terminal Help
saturn $ ./receiver
transfer buffer size: 16384
l dat byte size: 16384
timer interval: 100
client accepted, start reading...
STC: read 1024 bytes channel 4 done
first word in received protocol buffer = 1
second word in received protocol buffer = 16384
STC: read 16384 bytes channel 4 done
buffer received, first word = 8
second word = 65546
3-rd word = 620757006
4-th word = 1
STC: read 16384 bytes channel 4 done
buffer received, first word = 178
second word = 65546
3-rd word = 620756993
4-th word = 86
STC: read 16384 bytes channel 4 done
buffer received, first word = 152
second word = 65546
3-rd word = 620756993
4-th word = 169
STC: read 16384 bytes channel 4 done
```



MEN A20 Crate

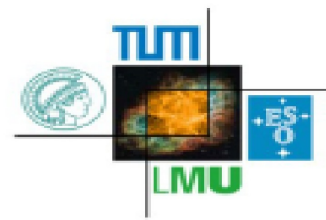


- › “Standard” COMPASS-based DAQ, TCS sits in the MBS crate
- › GeSiCA (and TCS) configuration based on config_server
- › config_server access to the GeSiCA via VME bus
- › New controller VME cpu, MEN A20
- › config_server has to be modified according to the MEN A20 VME drivers (or viceversa)
- › Wrong choice, several attempts with not-properly-working VME drivers





Status of the Art and Time-Schedule



- MBS crate ready. “Extensive” test on tomorrow (!)
- Spill-buffer PC properly installed
- Datasender working on “static” conditions, with simulated data as well as with real data from file. “Conceptually” ready for the spill-buffer ReadEventBuffer(). Test on tomorrow (!)
- MEN A20 still not properly operating with config_server. Work ongoing in Munich. Ready soon (must). Installation at GSI on (early?) January
- Full test of the integrated system when MEN A20 will be installed at GSI
- A third GeSiCA and a second S-Link will be implemented for the beam time (same operation, same functionality, no changes required)

Photogrammetric alignment of the test setup in Bonn (Alex S., Alex W., Sverre D):

- resolution ~ 0.5 mm
- position of outer frames, beam axis and silicons were measured
- used as constrain for software alignment
- telescope alignment done by Sverre D.

