MPP setups overview

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Max-Planck-Institut für Physik
(Werner-Heisenberg-Institut)

- 3x setups
  - pxdtest1
  - pxdtest8
  - pxdtest9
- in a clean environment
- 3x black boxes on stone tables
- ladder gluing in the same room
 $\rightarrow$ move desk

Julabo chiller

- currently with water at 12° C
- capable for -50° C
- cooling power at -40° C: 260 W
- can be easily controlled remotely
- temperature not yet stored into a PV
- no interlock so far, better software interlock with DHP temperature sensor
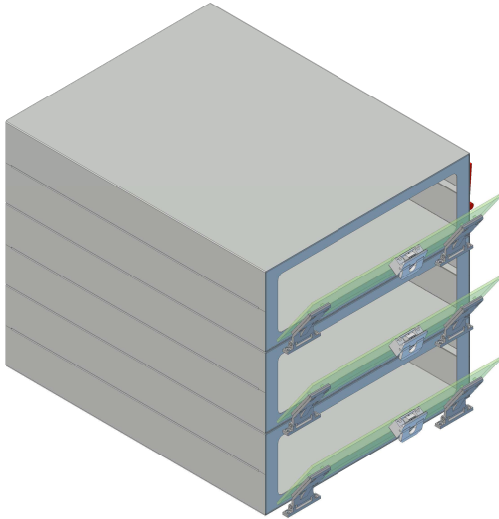
- corrosion protection during storage of the modules
- nitrogen connection at the side
- 3x shelves
- space for 5x3 ladders each corresponds to 90 modules

Support for DHH Carrier Card

- avoid shorts due to contacts at the backside
- fixed position of the fan aiming at the FPGA
- puts the DHE space saving and close to the black box
- patch panel directly connected to DHE
- prototype in use
  more ordered

- no Dock Box PCB
- no DHH
  (it is not planned to use them)
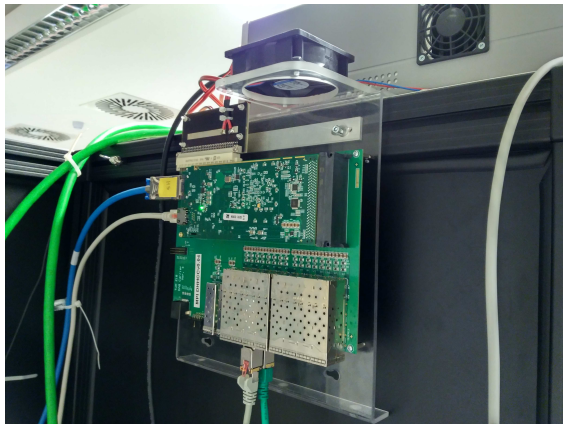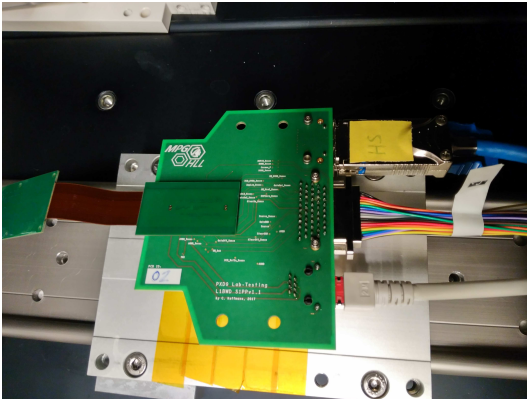
- 1x set (if, ib, of, ob) tested with the needle by Christian Koffmane
- ib and ob type tested with modules at MPP (to be continued with if, of)
- 1x set at HLL and 1x set at MPP
- more are produced by Christoph Knust and will be distributed

- 9x 1-m Glenair power cables (4x to stay, 5x to be distributed, more needed)
- 2x 3-m Infiniband and 5x 15-m Infiniband (short ones used)

- 3x cooling blocks (with three connections: cooling liquid in / out and vacuum) no spares for other setups (@HLL?), production time quite long (6 - 8 weeks)

- 4x copper cooling adapter (with vacuum hole (kapton fix), 2x to be distributed, 1x for ladder needed!)

LUJ-Xccs (control cooling set)
(cooling + vakuum fixation)
scheduled..: 6
produced....: 3

- EPICS archiver installed, problem to access web interface (hopefully solved during this meeting)

- 2x igus motor stages for source measurements (software in form of epics server in development by Pablo)

- 1x 980 nm laser available (discussion about gated mode ongoing: Felix and Christian)
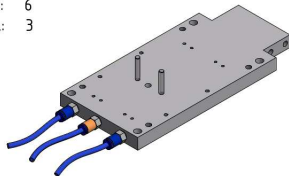
Purpose:

setup for the development and debugging of the mass testing scripts

- confluence documentation: https://confluence.desy.de/display/BI/pxdtest1
- slack channel: #mppremote

- already used by Pablo (matrix health) and Philipp (ADC curves)
- link stability problems
  - increased DHP voltages helped a bit (DHPcore 1.3V and DHPio 1.9V)
  - next: replacement of capacitors (C212, C257, C258, C259) with 0 Ω resistors for all DHEs
 - GCK buffer at Dock Box?
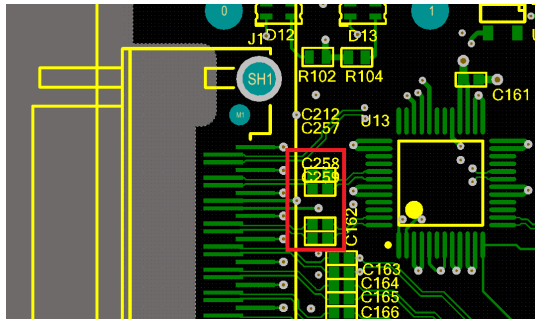
**W29_IF, W29_IB, W29_OF1 and W29_OB1**
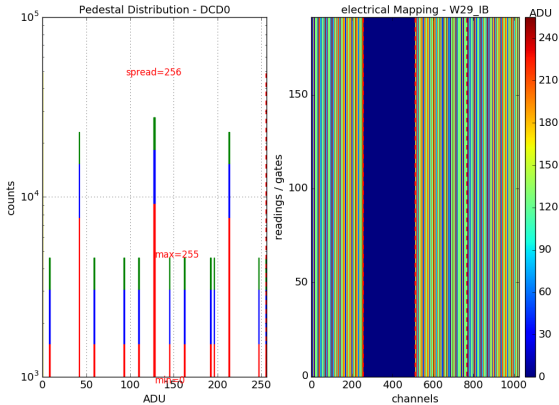
- creation of new configDB entry
- check for current consumption
- ASIC configuration
- data taking (testpattern)

New DHE firmware

- firmware used to far: 20160704 unstable UDP packer, a crash requires reboot of DHE and thus of the whole module
- new version of UDP packer runs much more stable
- trg_en must be set to 1 while data taking
- Taking data from more than one DHP at a time provokes an error in the data handling of the DHE. Some bits are repeated overwriting other data values.
- not yet a combined firmware (new UPD packer, internal trigger, gated mode)

Delay scan - W36_IF - asicpair: 2

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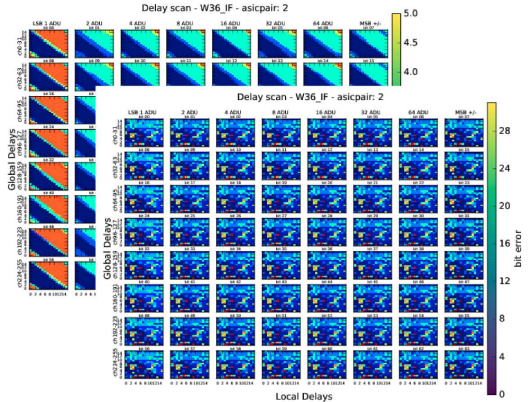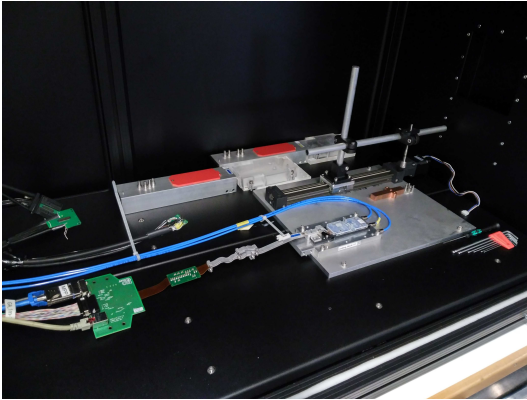
- temperature of the cooling plate $\approx$ -30° C
- new cooling liquid and isolation of pipes (Sven Vogt)
- cover for nitrogen flow to avoid condensation (Sven Vogt)
- new idea:
  Is it possible to perform all tests at this temperature?
  In principle, yes, but infrastructure not yet there...

proposed by Carlos:

- complete step by step instructions and manual on mass tests
  (starting at checking the received module set for completeness, visual inspection,
  installation instructions, check cooling and vacuum, up to how to use the
  lab_framework, where to document results...)
- still collecting issues
- to be put on confluence and into lab_framework

Automatic startup sequence

Works good and helps speeding up! But we have seen that sometimes some PVs are not set correctly. This is probably related to the way of writing (synchronous/asynchronous). Under investigation with Harrison and Philipp.
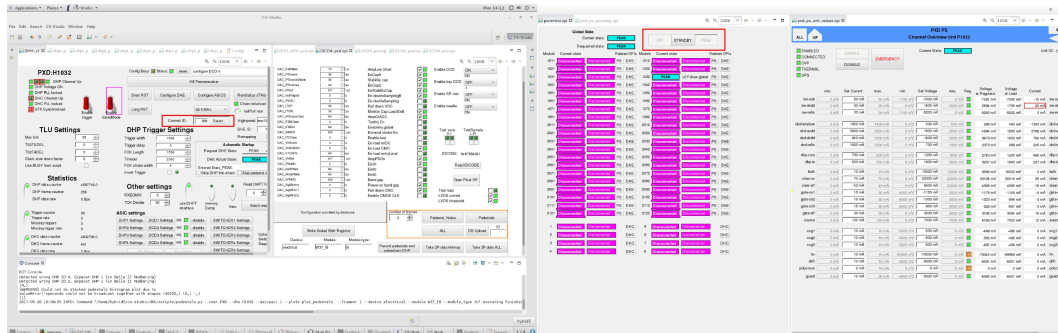
No solution yet to run the "automatic startup sequence" for three setups at one location independently and still using the archiver. Visibility of the PVs for the network. (Michael Ritzert?)

Still a long ToDo list:

- finalizing test scripts
- replace caps on DHEs
- get enough patch panels (final ones)
- get combined DHE firmware (stable UDP packer, internal trigger, gated mode, ...)
- cooling setup (all tests at low temperature?)
- automatic startup sequence for all setups
- mass testing handbook
- DHP temperature interlock