OAK RIDGE National Laboratory

eRD109 – H2GCROC update

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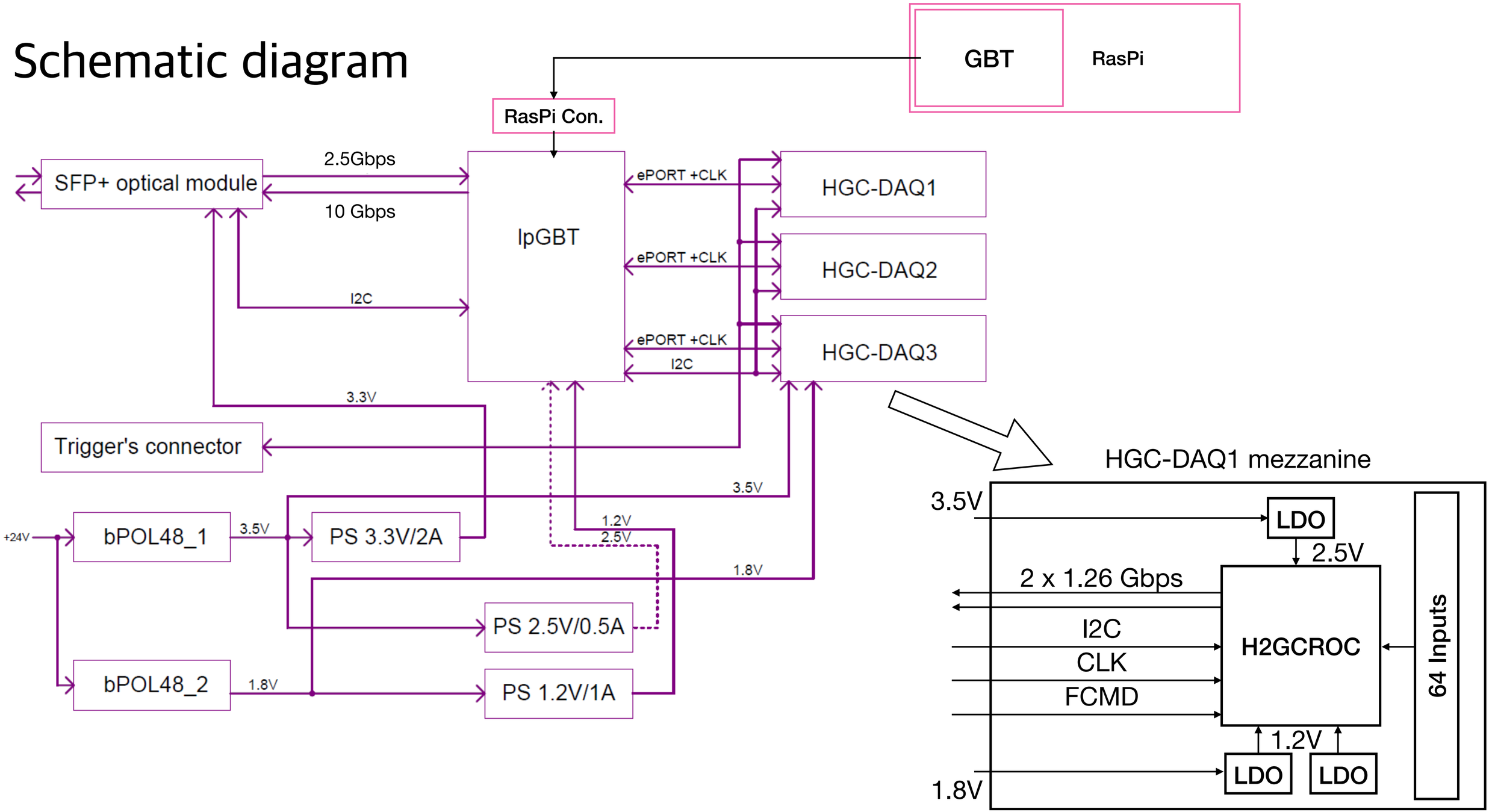
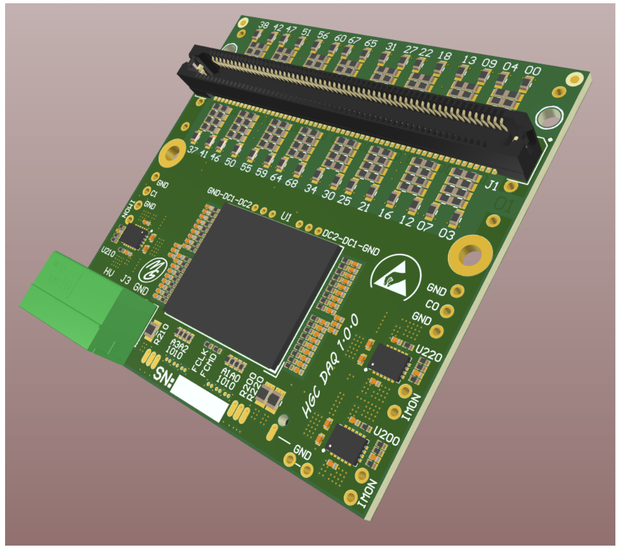
Schematic diagram

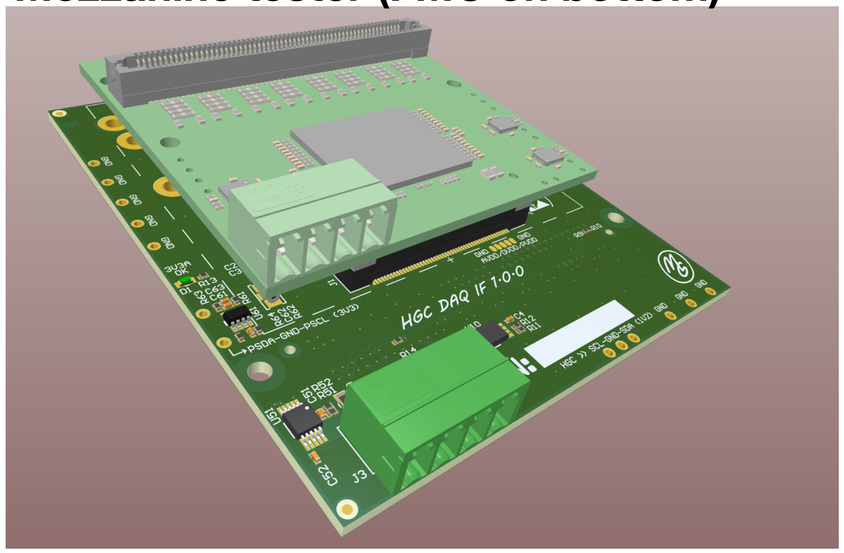


New H2GCROC readout board

H2GCROC mezzanine



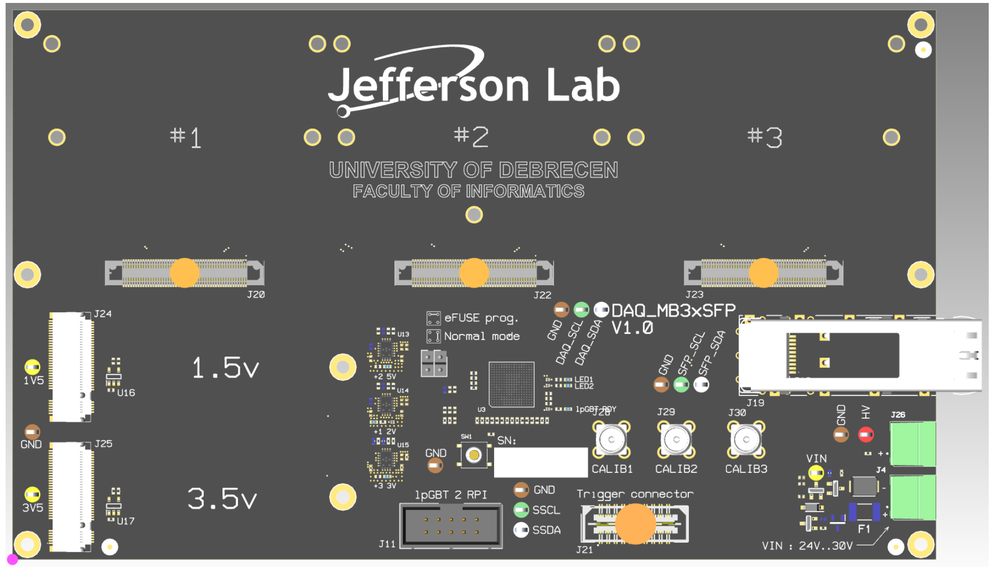
Mezzanine tester (FMC on bottom)



The mezzanine:

- 10 H2GCROC mezzanines will be produced
- One mezzanine == 64 channels
- Once CALOROC is available:
  - Make mezzanines with CALOROC
- Mezzanine Tester:
  - Connect to an FPGA FMC connector (e.g. KCU105, RDO, etc)
  - Individually testable setup
  - Can be used for small setup as is

Baseboard for 3 mezzanines

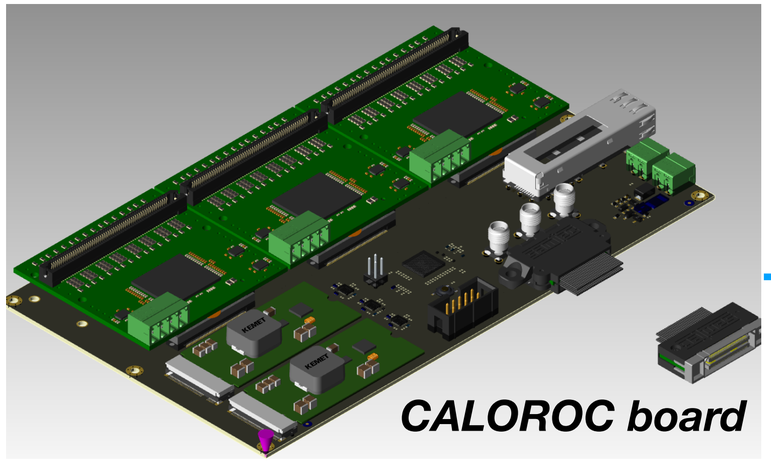


Step forward:

- Can take 3 mezzanines:
  - Does not matter H2GCROC or CALOROC mezzanine
  - Both has 2x1.28 Gbps data lines
- First test article for all FEB
  - 1 LpGBT can take 3 ROCs
  - 1 SPF+ —> 10 Gbps output
  - 2 DC/DC bPOL48 converters
  - All radiation tolerant (SPF+?)

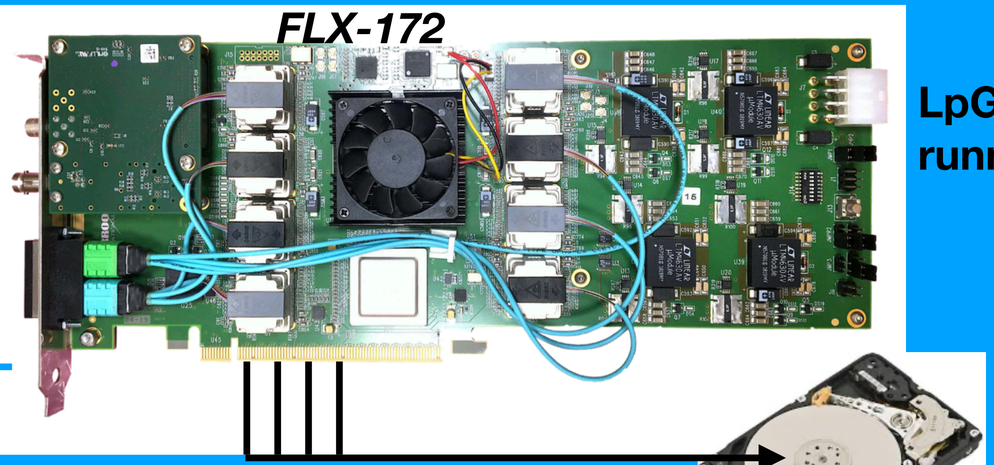
Full DAQ testing

Step 1 (end of September):



10Gbps fiber

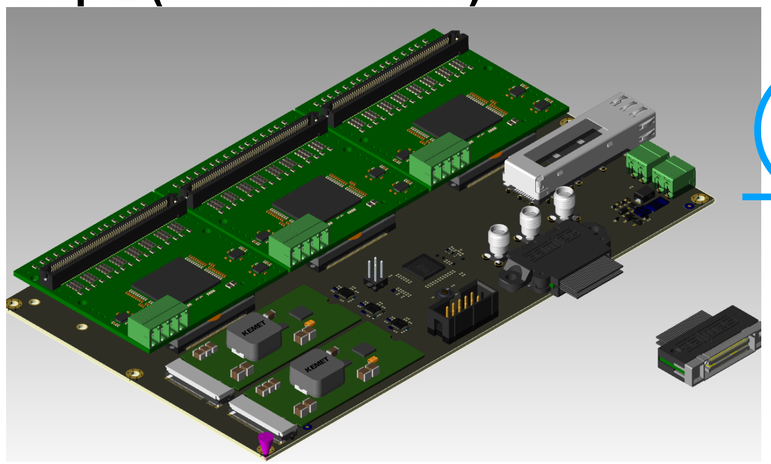
PC

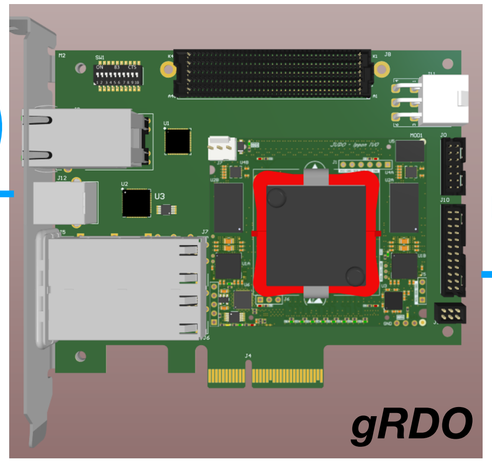


LpGBT fw running

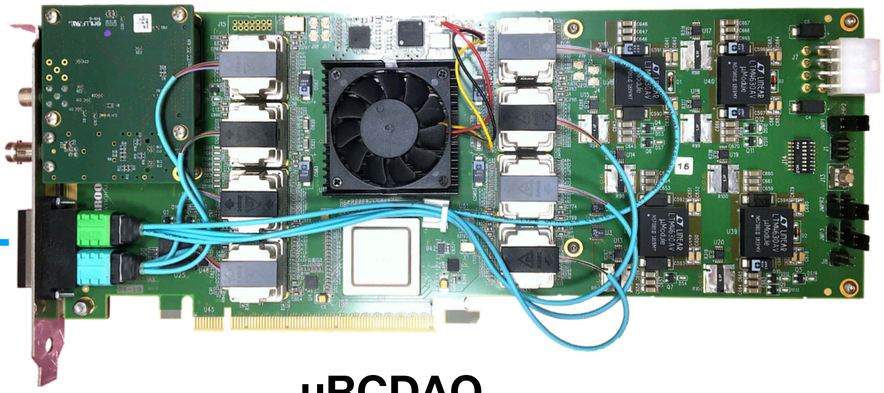
RCDAQ

Step 2 (end of October):



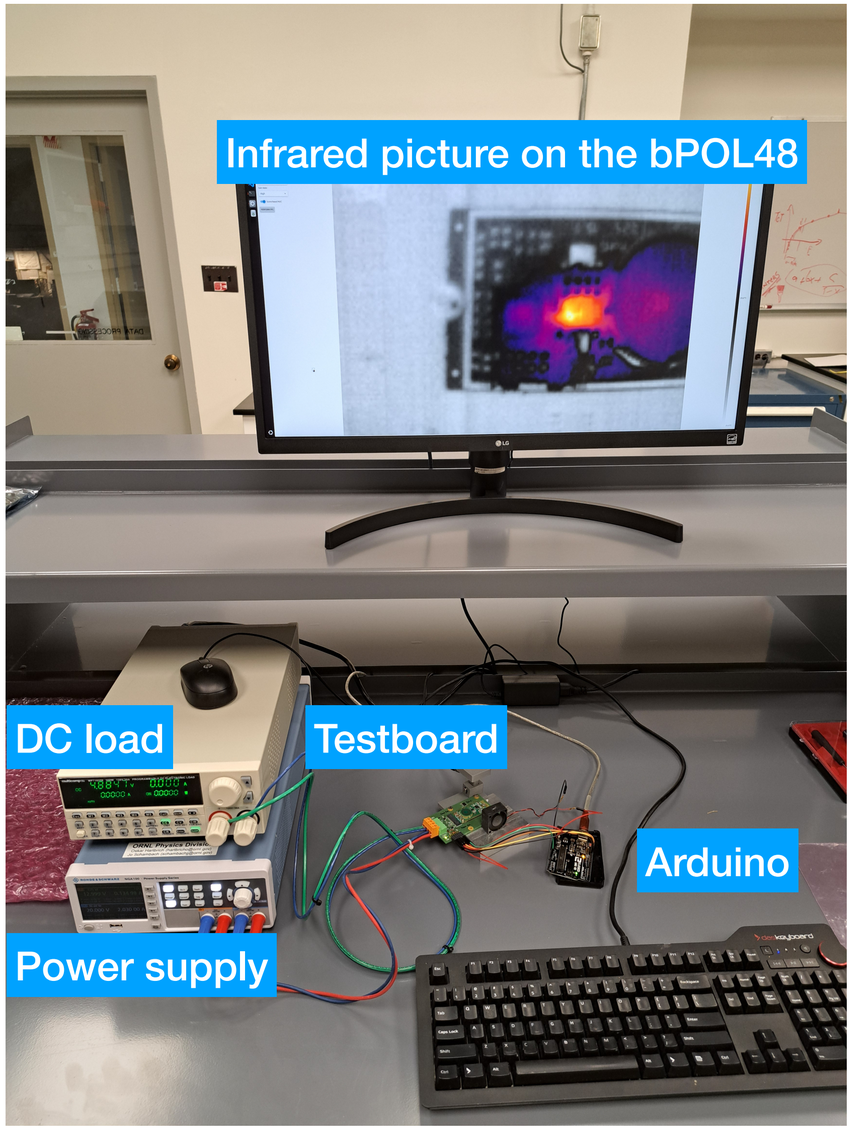


LpGBT fw + aggregator

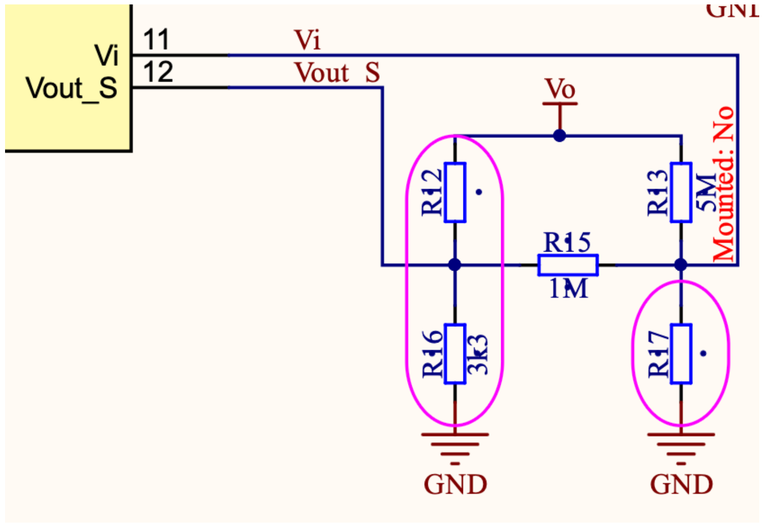


µRCDAQ

bPOL48 testing stand



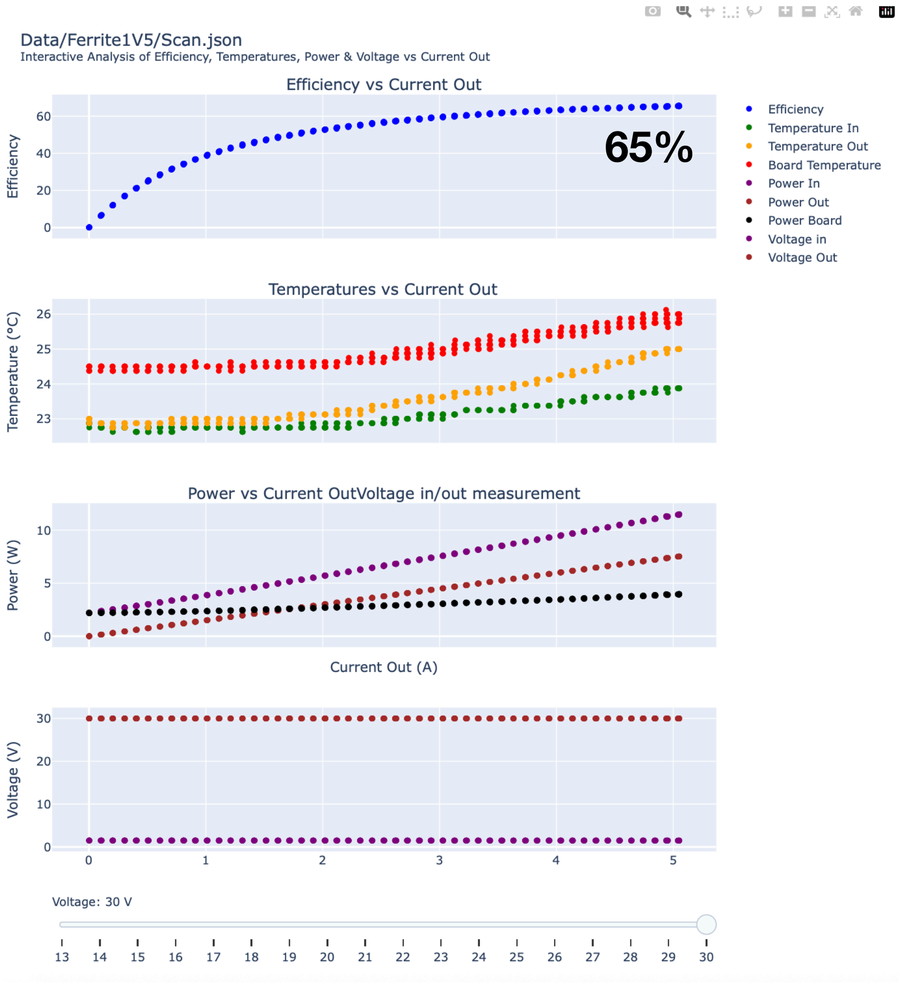
- This current mezzanine is maxed out at 5A
  - Do not apply more
- Two mezzanines (third sent to Gerard):
  - One is a aircoil from CERN
  - One is a iron-powder thing
- DC/DC programable load
- Power Supply (max 2A input)
- Arduino to monitor everything, temperature, power
- Infrared camera, just to see the heat sources



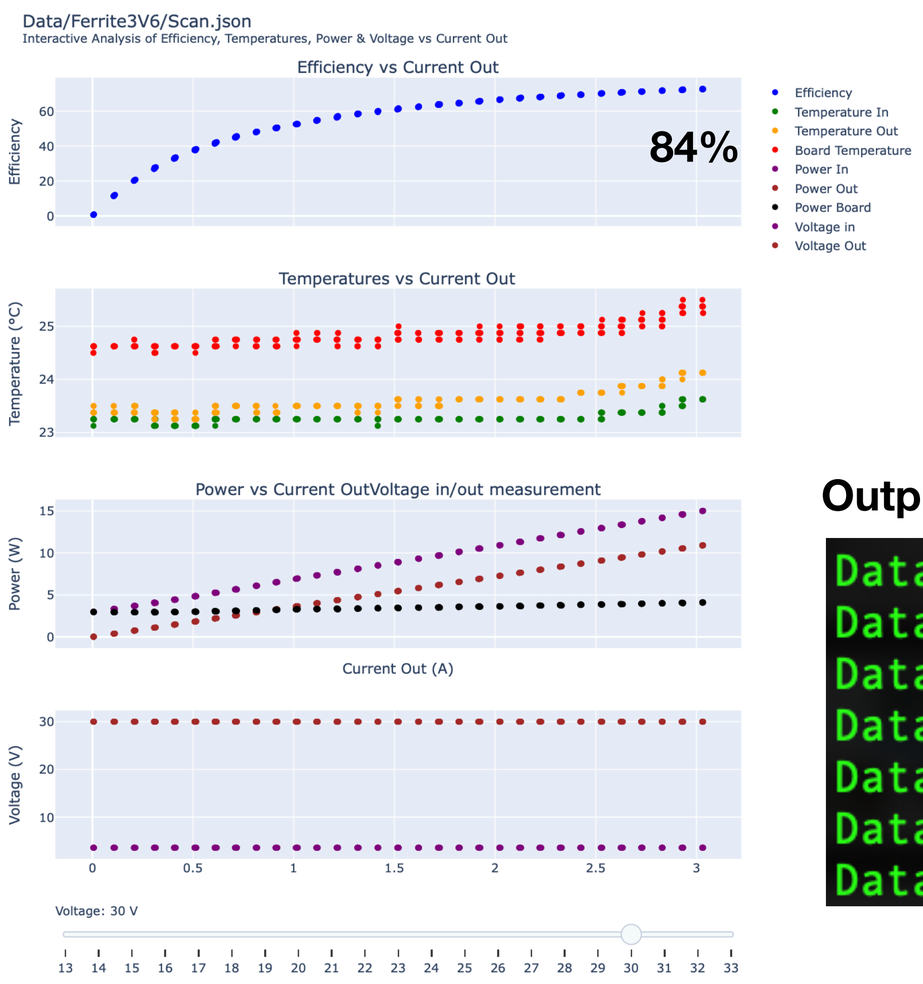
You can setup the output voltage with the resistors

Interactive results for different outputs

Ironpowder 1.5V



Ironpowder 3.6V



Output files available now:

```
Data/Aircoil1V5/Scan.json
Data/AirCoil2V7/Scan.json
Data/AirCoil3V6/Scan.json
Data/Ferrite1V5/Scan.json
Data/Ferrite2V7/Scan.json
Data/Ferrite3V6/Scan.json
Data/Ferrite4V8/Scan.json
```

Interactive results for different outputs

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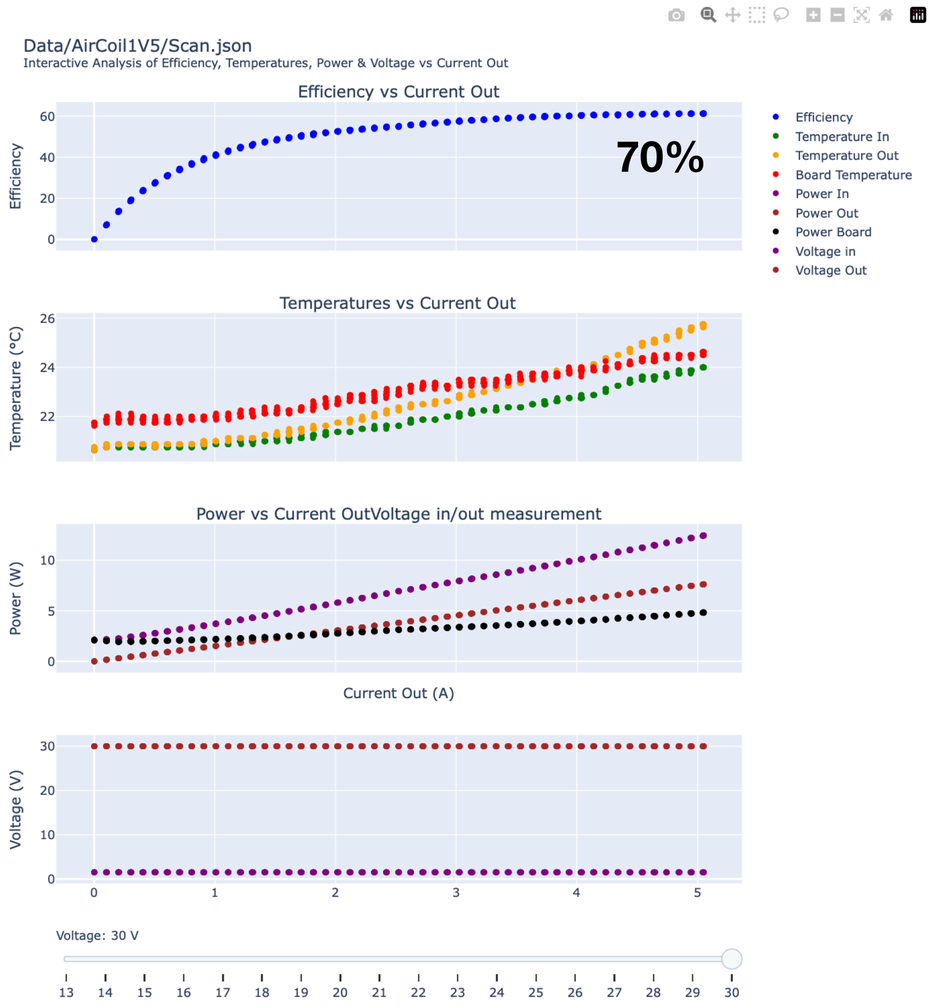

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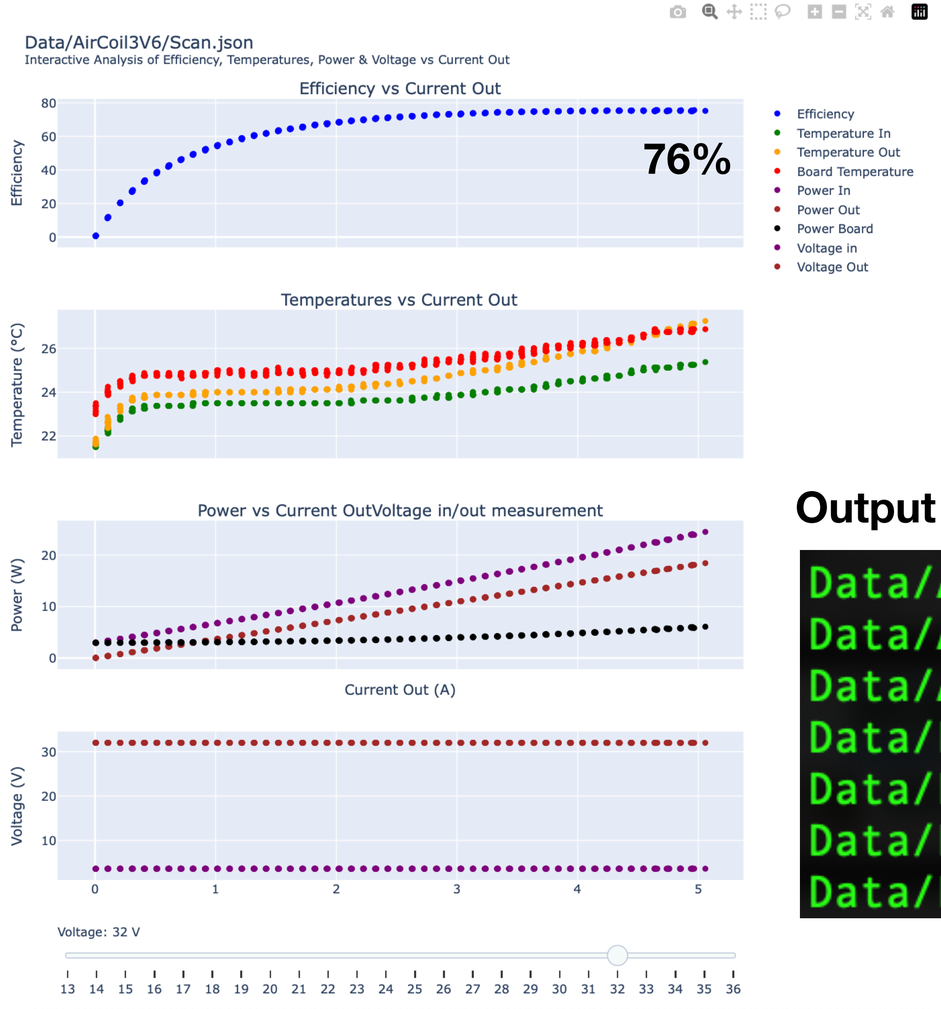

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