OAK RIDGE National Laboratory

DC/DC converter – bPOL48

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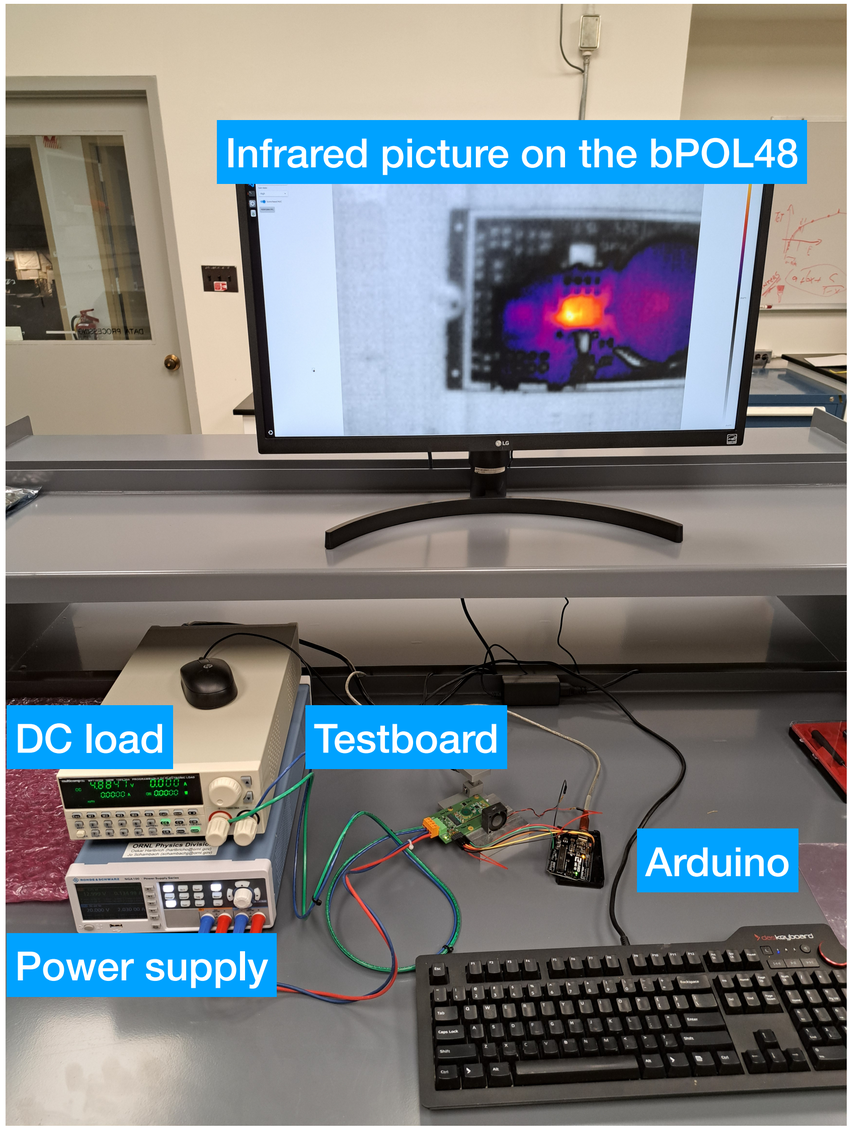
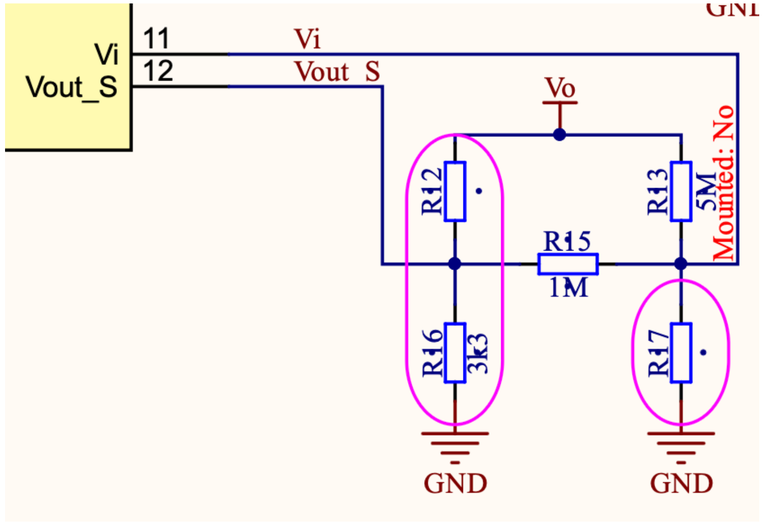
(ORNL)

ORNL is managed by UT-Battelle LLC for the US Department of Energy

bPOL48 testing stand

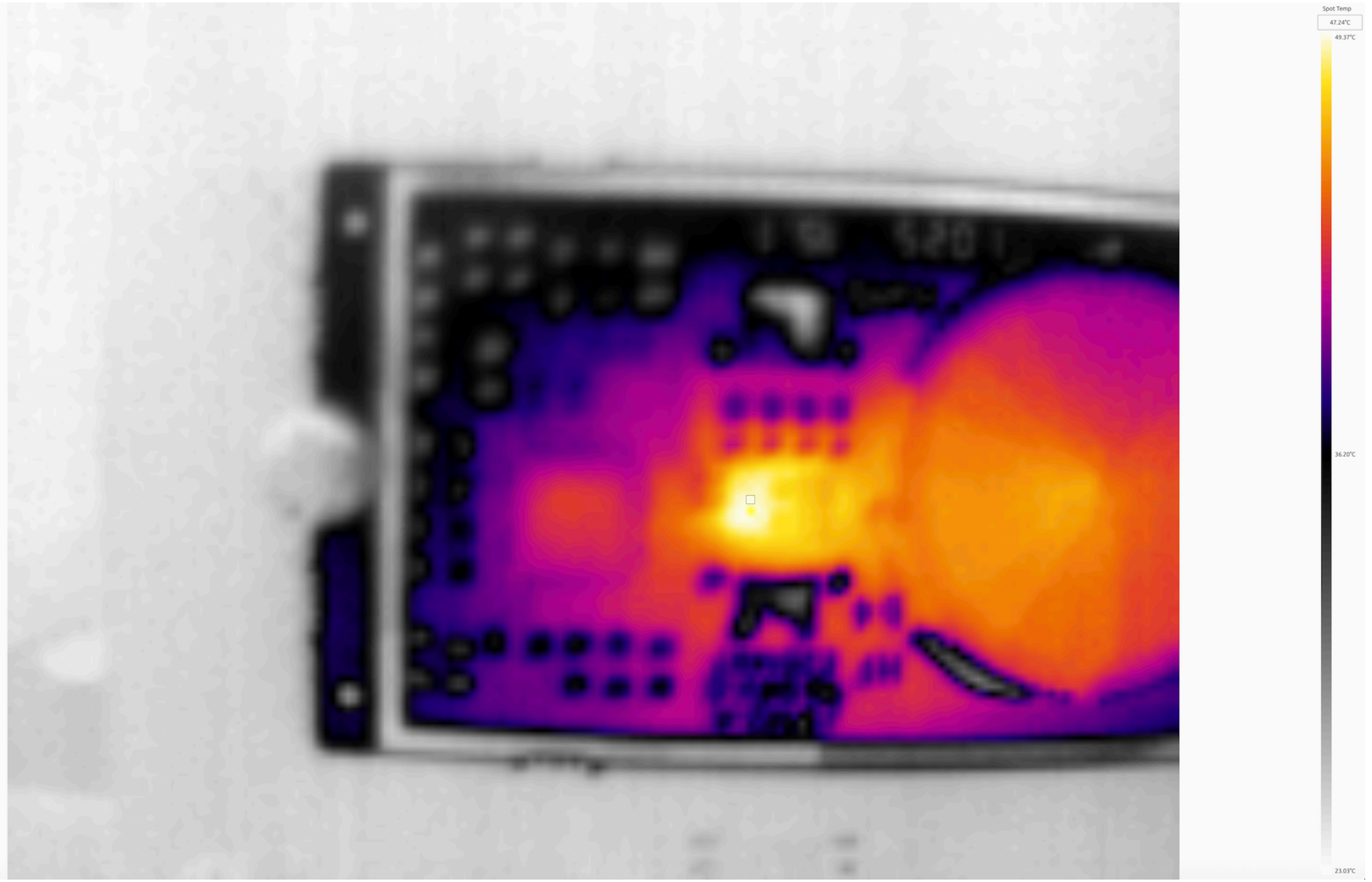


- This current mezzanine is maxed out at 5A
  - Do not apply more
- Two mezzanines (third sent to Gerard):
  - One is a aircoil from CERN
  - One is a iron-powder thing
- DC/DC programable load
- Power Supply (max 2A input)
- Arduino to monitor everything, temperature, power
- Infrared camera, just to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



You can setup the output voltage with the resistors

Some infrared pictures to see what is going on



V_{input} = 16 V
I_{input} = 0.88 A
$Power_{in}$ = 14W

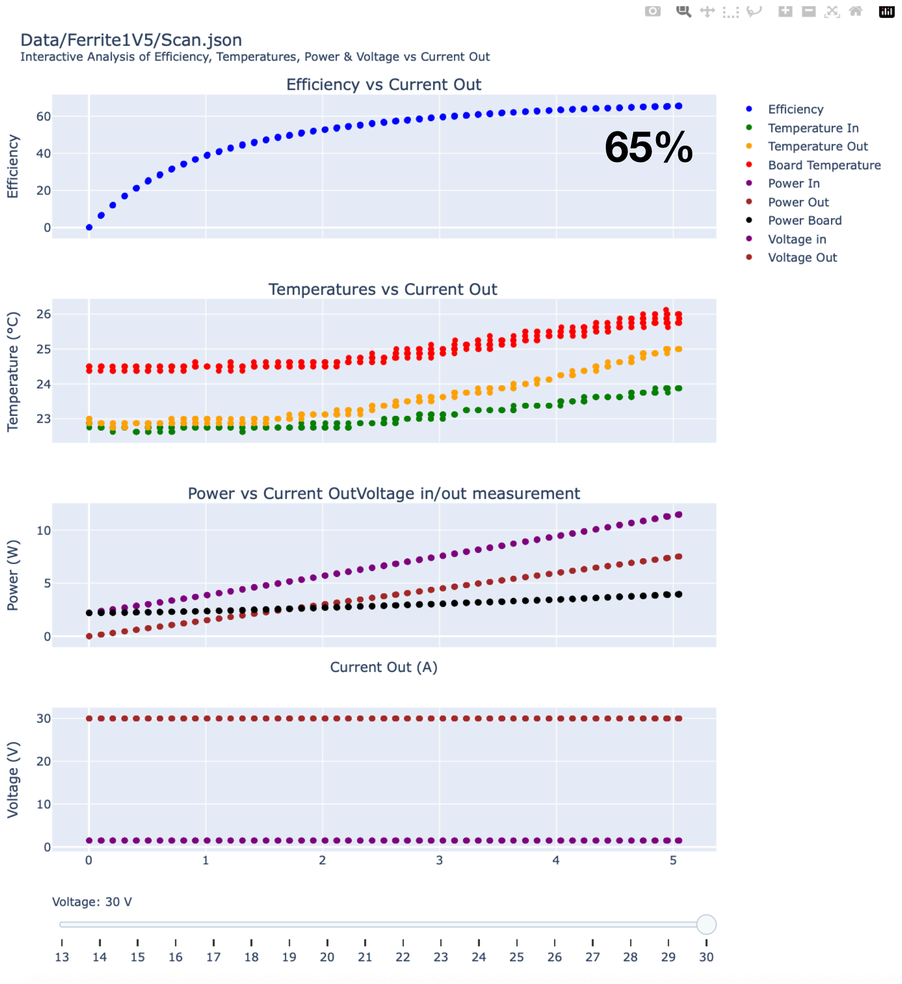
V_{out} = 2.7V
I_{out} = 4.0A
$Power_{out}$ = 10W

Hotest point 49.4 C

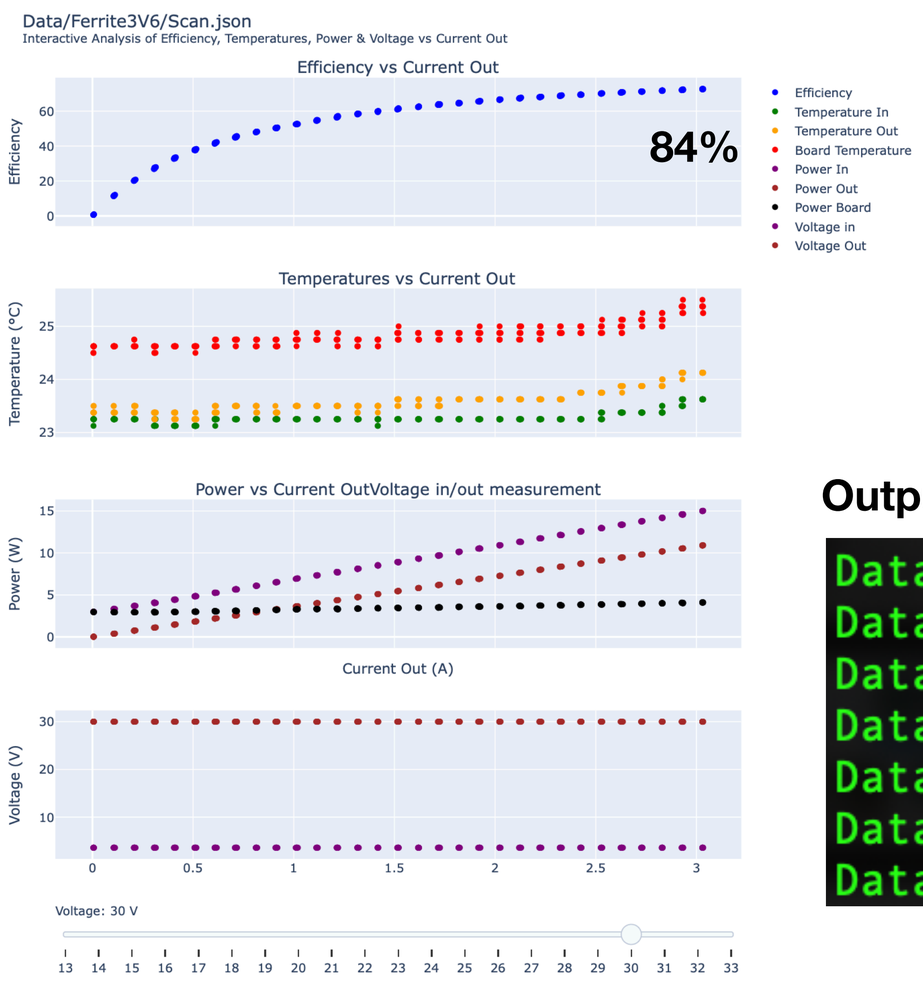
It has an internal shutdown if the temperature is too high

Interactive results for different outputs

Ironpowder 1.5V



Ironpowder 3.6V

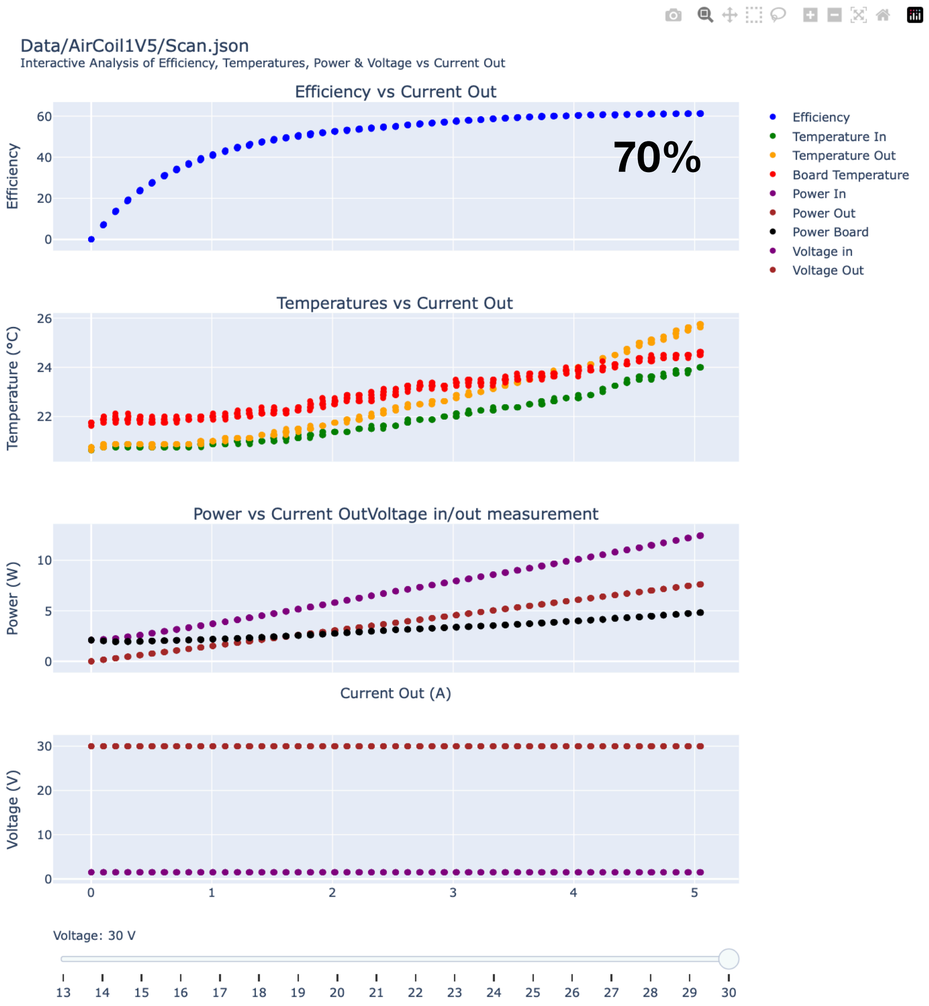


Output files available now:

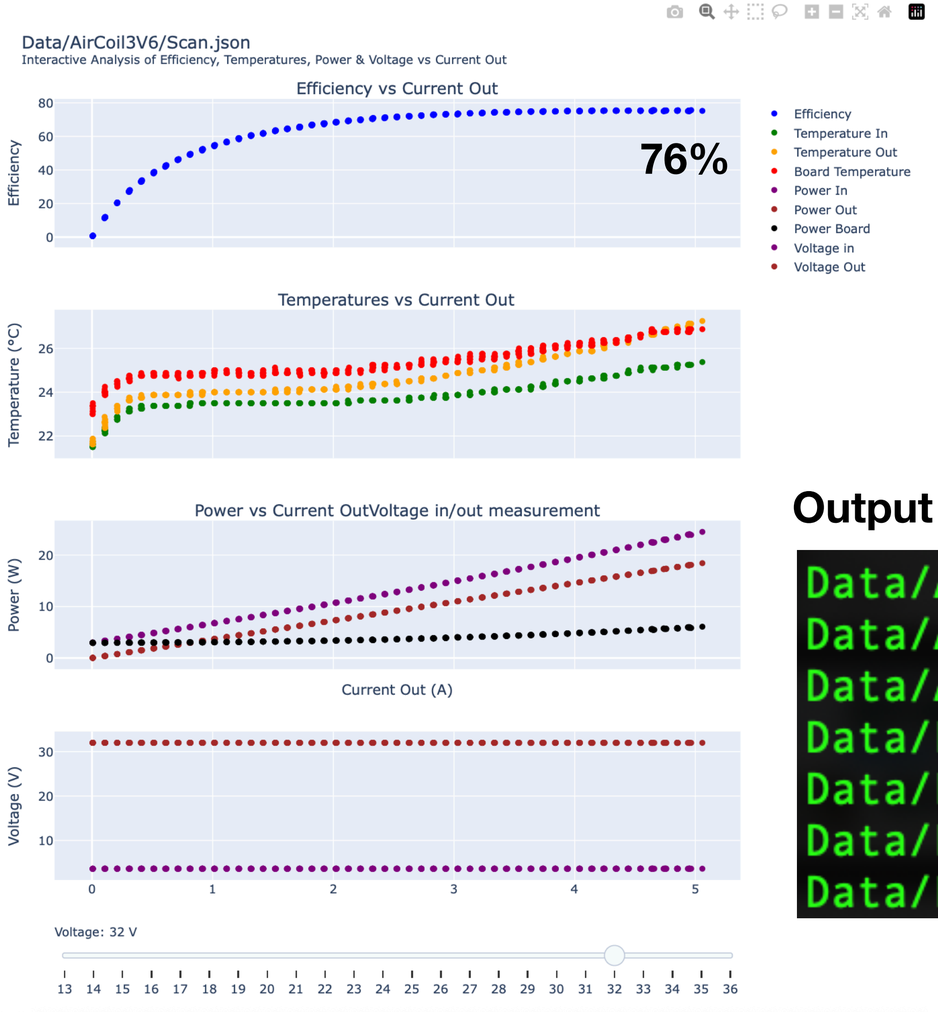
```
Data/Aircoil1V5/Scan.json
Data/AirCoil2V7/Scan.json
Data/AirCoil3V6/Scan.json
Data/Ferrite1V5/Scan.json
Data/Ferrite2V7/Scan.json
Data/Ferrite3V6/Scan.json
Data/Ferrite4V8/Scan.json
```

Interactive results for different outputs

Aircoil 1.5V



Aircoil 3.6V



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```

Summary

Tested 1.5, 2.75, 3.4, 4.8 V with the current setup:

- Both mezzanines were tested

Will share all the results with the group:

- Please tell me if you have specific voltage requirements:
  - For lpGBT you need 1.2 V
  - For VTRX+ you need 2.5 V
  - For SFP+ you need 3.3 V
  - For CALOROC you need 1.2 and 2.5V
  - I am done for my stuff, tell me your needs

I bought 100 bPOL48 ASICS from CERN

- 20 are on the way here to ORNL (export controls are passed, should be on the way now)
  - Will ship to BNL afterwards?