

CAEN PS status

Firmware for cooling tests

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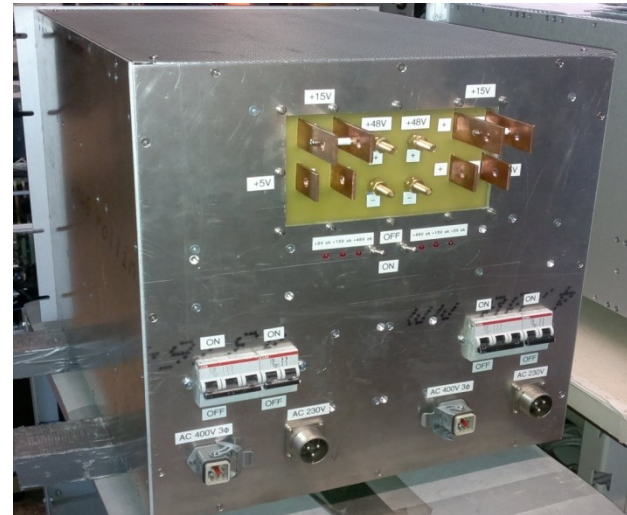
EB meeting – 21/07/2014

CAEN power supply (1)

Prototype of the final power supply



front



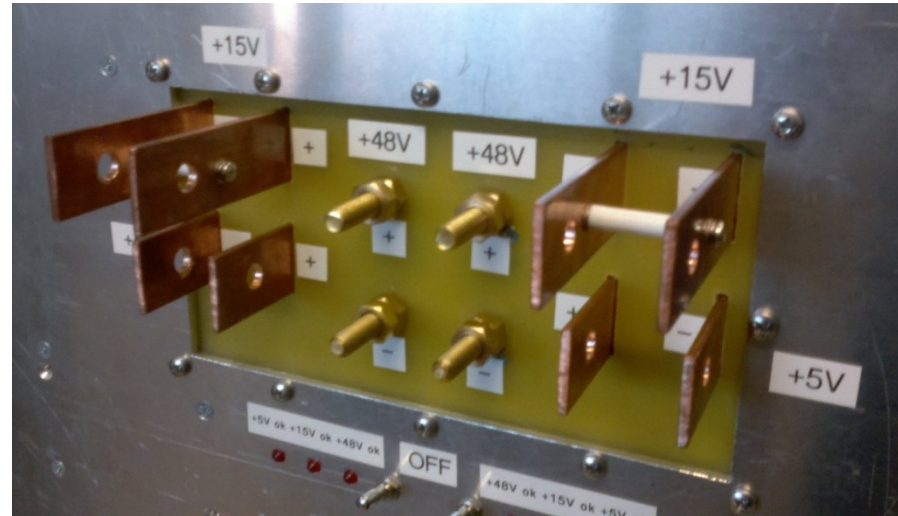
rear

2 ch 5V 100A single fase
2 ch 48V 50A three-fase
2 ch 12V 200A single fase

CAEN power supply (2)

The power supply has been tested in CAEN (February 2014)

- ✓ 50 A @ 48V
- ✓ 60 A @ 12V
- ✓ 100 A @ 5V



- Now the power supply is in USA15 at CERN. It is used to power the crate used for the cooling test (see Stefano's slides)
- We are going to order 2 new CAEN power supply

Firmware for cooling tests (1)

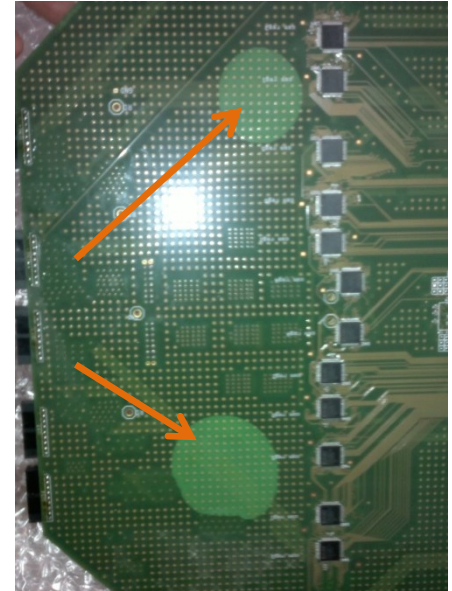
- We understood that for a good cooling test we need boards in the crate similar to the final ones
- So we decided to use the “old” AMBSLIM boards filled with the “old” AMCHIP03 (the one used at CDF@Fermilab)
- We developed special firmware for these boards to emulate the power dissipation estimated for the final boards



Firmware for cooling tests (2)

- We have 4 AMBSLIM boards, but for several reasons the behavior is not the same

- ☐ PCB with problems (AMBSLIM serial 2v3)
- ☐ FPGA with problems (AMBSLIM serial 3v3)



- ➔ different firmware for each board to reach the same power dissipation
- The goal: reach more than **200W** (!) of power dissipation for each board

Firmware for cooling tests (3)

AMBSLIM	FIRMWARE	AMPS @ 3,3V	AMPS @ 48V	TOTAL POWER
1v3	B	9,90 A	4,0 A	~ 225 W
1v2	C	11,1 A	4,0 A	~ 228 W
2v3 (PCB with problems)	D	15 A	3,25 A	~ 205 W
3v3 (FPGA with problems) BACKUP	Firmware on CPLDs	17 A	2,8 A	~ 191 W

Firmware for cooling tests (4)

- These boards has been used (and will be used) for the cooling tests in the USA15 @ CERN



The crate in USA15 with the AMBLSIM boards and the other “heating” boards

Conclusions

- CAEN power supply (prototype) ready, tested in CAEN and used for cooling tests
- 2 new CAEN power supply will be ordered soon
- Special firmware (for AMBSLIM boards) for cooling test has been developed and already used in USA15 @ CERN
- Cooling tests (see Stefano slides)