# BigCal Status

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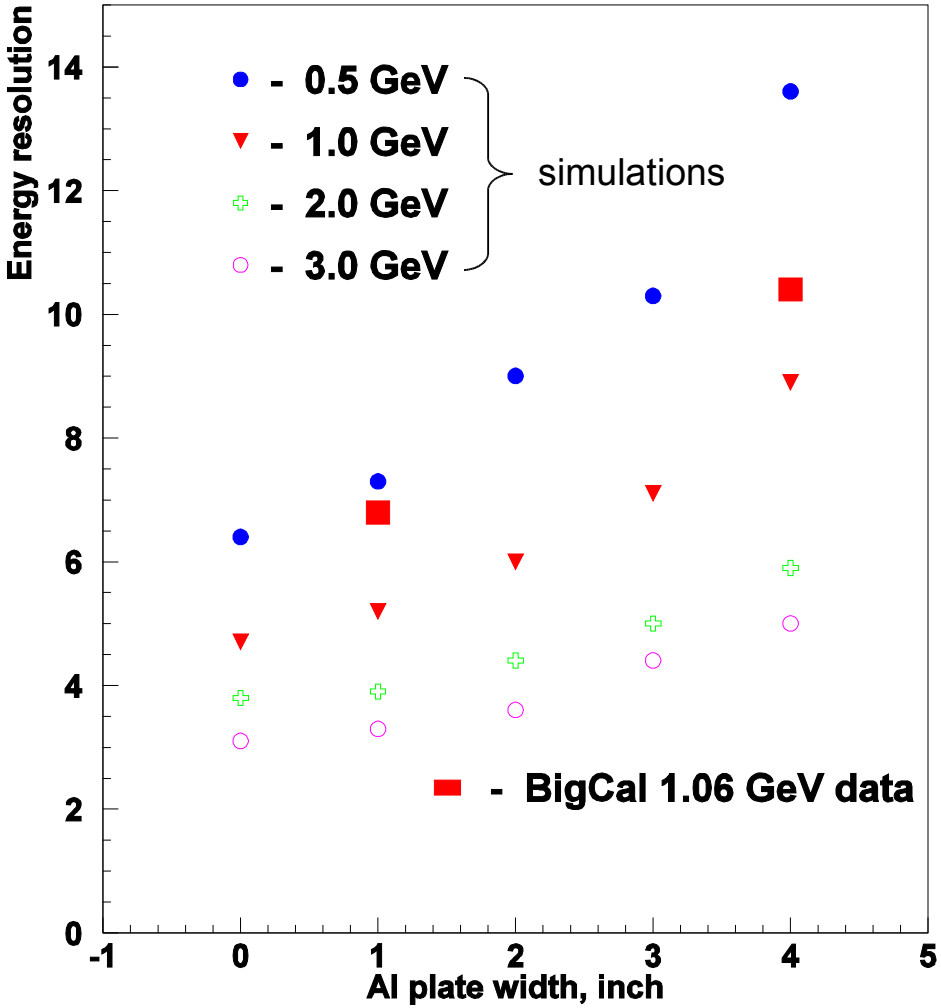
- UV curing
- Do we need the “monitoring” system?
- Safety and other issues

# UV curing

- June 19, one UV light box installed (covers ¼ of the frontal area)
- Moved to 4 positions (June 19 – July 17)
- July 17, second UV light box installed (positions 1 and 3)
- August 5, moved to positions 2 and 4
- Anticipate curing till first week of October: almost 2 months per position (3 days in the GEP experiments)
- Monitoring the PMTs

# Energy resolution and use of “monitoring” system




- Measurements done at the beginning of the GEP experiments (small radiation damages)
- Removing the monitoring system (1” lucite + ½” Al) will improve the resolution by <1%
- “Monitoring” system - important tool in testing, but practically can’t be used to monitor the gain
- Some improvements can be done:
  - replace the optical connectors of the 56 fibers
  - connect the two sides of the light box
  - reduce the width of the light pulse

# Calorimeter Platform –Safety Issues

• One can walk on the platform without harness – there is stair to, and fence or detector parts and equipment all around the platform.

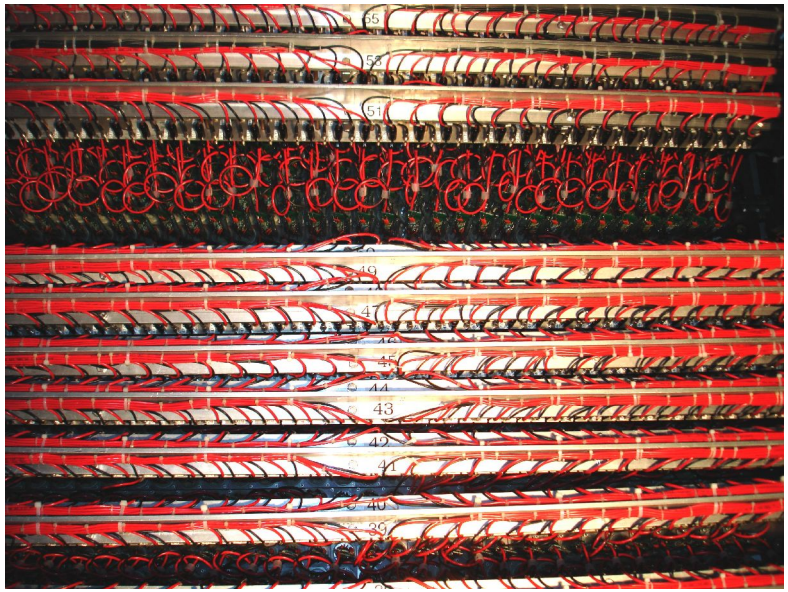
• Working outside of the platform to reach the HV patch panels, signal patch panels, or rear side of the electronics (normally not needed), is possible using a step ladder.

• Before entering the black box all the HV chan. and booster supply must be turned OFF. Only experts are allowed to enter the black box. The door is normally locked, there is a sign on the door, and a sensor connected to the HV interlock system.

• All HV chan. must be OFF before doing any work on the light box. Only experts can do this.

• There are 4 temperature sensors inside the black box adjusted to activate the interlock system above ~$120^0$F.

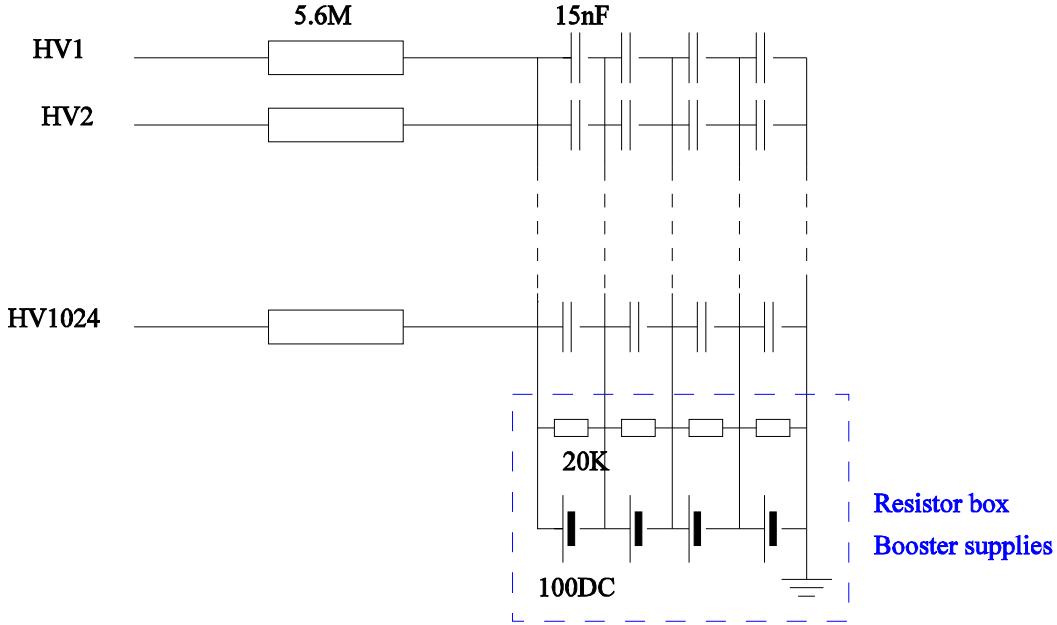
# HV subsystem at detector



## RCS part:

•High power (~1 Watt/ channel), still no need to cool: temperature increases by $10^0$C when turning ON all HV chan.

•Amplifying signals 4.2 times results in much lower HV as compared to previous operation in Hall A -> Lower power and longer life.

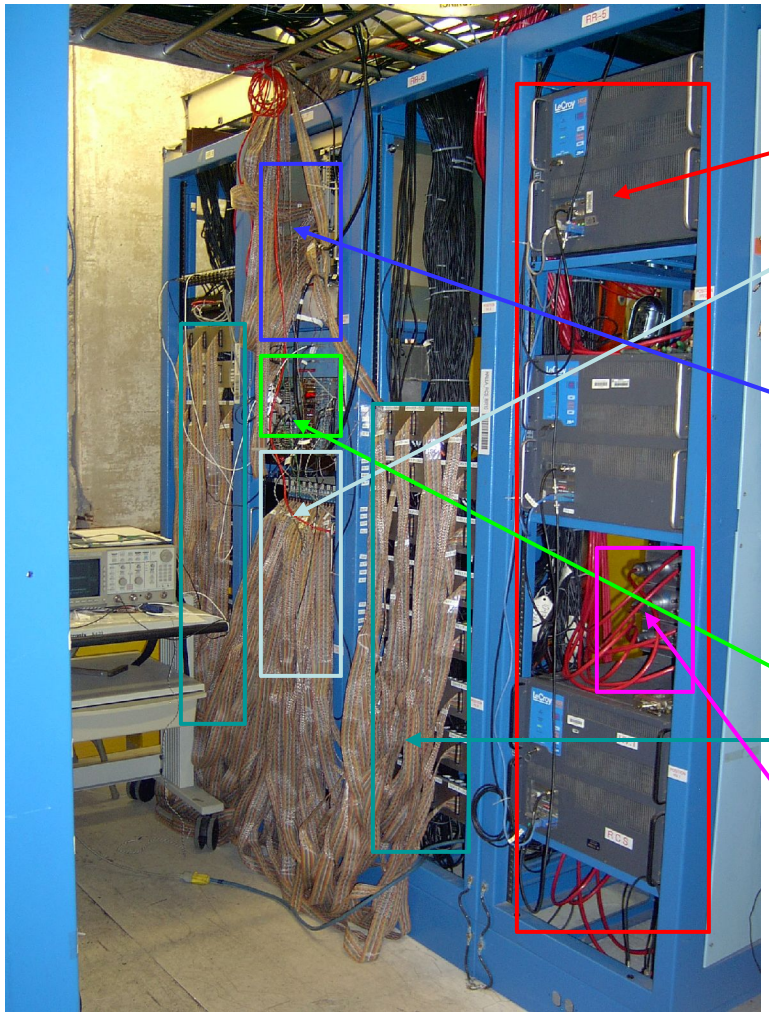



## Protvino part:

•Booster supply reduces the current on the bases by a factor of 3-4 (4 units each at -100V/ 200mA), but all chanels are interconnected:

• TURN OFF ALL HV CHANELS AND BOOSTER BEFORE WORKING ON ANY PROTVINO HV CHANEL.

# Electronics/HV



In the bunker (Electronics Platform):

LeCroy HV Supplies (6 crates 1104+48 spare chan.), interlocked from BigCal sensors

Two Fastbus Crates with 29 ADCs (1782+74 chan.) and 4 TDCs (262+122 chan.), covered on the back (each ~ +75/-80A for +5V/-5.2V)

Two VME crates: TS and scalers; and slow control system and remote resets

Two CAMAC crates with17 discr. (262+10 chan.) and modules for the slow control system (each ~ +18/-20A for +6/-6V)

One NIM crate: coin. trigger and gates

Signal Patch Panels

HV patch panels

Second floor counting house (G0 electronics):

CAEN HV supplies (11 crates 640+64 chan.) interlocked from BigCal sensors

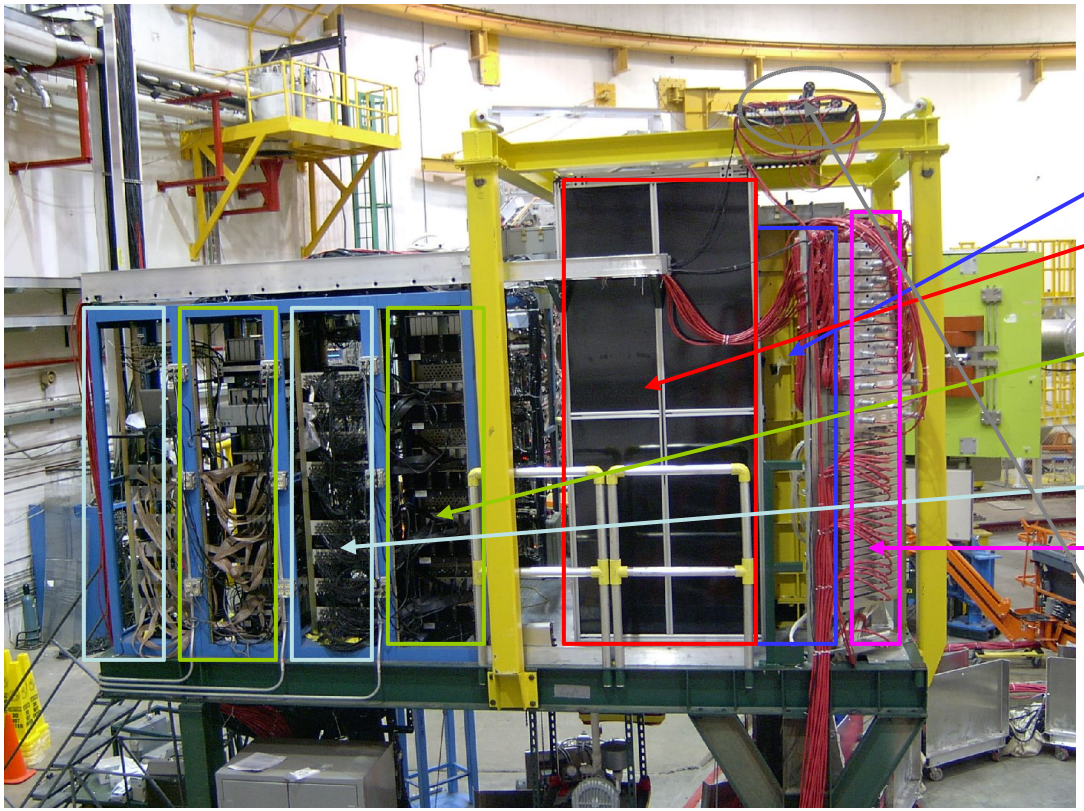
Counting house (SOS HV supplies):

Two CAEN modules (10+22chan.) used for the scintillators, not interlocked

# Summary

- Expect to have ~2 months UV curing per position (20 times more than during GEP)
- The “monitoring” system is needed for testing and will deteriorate the resolution by less than 1%; some improvements of the system needs to be done
- Main simple rules working with BigCal:
  - Turn off all HVs and booster supply before entering black box, working on the light box, or moving calorimeter (interlock may not always work, e.g. when one HV crate is not powered).
  - Booster supply and HVs should be either both ON, or both OFF (if needed lower the HV of single channels to 500V, not to 0V!)
  - Try to keep the NIM crates (at the calo platform) powered all the time

# Calorimeter Platform



Lead Glass 1744 blocks (4300kg)

Black Box (PMs, bases, patch boards, temperature & door sensors)

Front-End Electronics (incl. trigger)

Booster Power Supplies

Signal Patch Panels

HV Patch Panels

Light Box (monitoring system)

Scintillators (for cosmics)

Absorber (4” Al)

Total: 25,000lb

- Bottom part: 32 x 32 blocks (each 38 x 38mm) from Protvino
- Top part: 30 x 24 blocks (each 40 x 40 mm) from RCS

Same PMs, different bases (Protvino requires booster), patch boards, HV connectors