

### ***If APV4RICH readout gives errors***

If errors occur on one of GESICA execute the following commands:

LOAD -A <GESICA ID> , GESICA ID is one of 546, 547 548 549, 550

“LOAD -A” takes about 5 minutes , **be patient!!!**

If errors occur during loading then check the status of  
**low voltage power supplies in DCS.**

Repeat loading with the following commands:

LOAD -z <GESICA ID>

LOAD -rapRd <GESICA ID>

If the errors persist do a power cycle of the APV4RICH ADC cards:

- switch off power of ADC cards via DCS
- wait for 3-4 minutes and switch ON again
- wait for 5 minutes and execute:

LOAD -A 546 547 548 549 550

- do not forget to be patient

# APV4RICH read out system

## 1. Power supplies

The APV4RICH read out system is powered by four WIENER PL600 power supplies. Two PS (top and bottom) power analogue FE cards and two digital ADC cards. The power supplies are located on top of the RICH vessel and underneath the vessel. For security and convenience reasons the main power lines(220V) have breakers , one for each power supply. The breakers are mounted inside the area on a concrete wall on the Saleve side next to the RICH vessel and marked with labels. The power supplies mounted on top of the RICH vessel are cooled with external fan units. The fan switches are mounted next to the breakers as well.

The status of the power supplies is controlled by the DCS , each power supply can be switched ON and OFF from DCS screen.

### **Switch ON procedure:**

1. check the status of the fan and the power supply switches, breakers. Switch ON if they are OFF
2. switch ON power supplies from DCS screen
3. Wait for 5(five) minutes before loading firmware. This time is needed for ADC card microprocessor to load initial firmware in to FPGA
4. to load everything with one command:

*LOAD -A 546 547 548 549 550*

This command takes about 5 minutes

One may load everything in steps

*LOAD -g <GESICA ID>* load GESICA

*LOAD -z <GESICA ID>* load firmware in to FPGA

*LOAD -R <GESICA ID>* load FPGA configuration registers

*LOAD -p <GESICA ID>* load pedestals and thresholds

*LOAD -ra <GESICA ID>* load APV chips

If one of the commands ends with ERROR repeat the command for ID which gives the error.

If the error persists repeat all commands starting from

*LOAD -z <GESICA ID>*

If the command still ends with error check a status of the power supplies and make a power cycle.

## **2. Taken new pedestals ( for apv4rich experts only!!!)**

New pedestals have to be taken if some areas have too high or too low (no entries in histograms) occupancy. The normal occupancy is about 0.3%.

The pedestals can be taken only without beam !!!

### **Procedure:**

#### 1. DAQ setting

- *LOAD -ml 546 547 548 549 550*
- select custom triggers and prescale RANDOM triggers to about 2000 ev/spill
- select dead time “GEM LALL”

#### 2. Obtain pedestals

- *cd /online/detector/apv4rich/work\_richapv*
- edit “richapv.opt” file and set “Data file” to a corresponding raw data file or a data stream
- execute  
*./richapv richapv.opt*
- press “RichAPV” button, a new window with APV4RICH image pops up
- in this window one may look at the pedestal and noise histograms on a level of APV chip or ADC card
- collect about 1000 events,
- check CommonMode noise , the noise should be within 1.8-2.2 ADC counts except 1-2 channels for every APV chip
- press “QUIT” on the first window, the pedestal and noise values will be saved
- execute two scripts  
*./activate\_last\_pedestals.sch*  
*./insert\_active\_pedestals\_in\_MySQLDB.csh*

#### 3. load new pedestals

*LOAD -p 546 547 548 549 550*  
*LOAD -ms 546 547 548 549 550*