

First aid for operating the Lund DAQ-system

Switch on the monitor computer (small computer on the table)

Switch on the data taking computer (big computer underneath the table)

Wait until the monitor computer has booted

Switch on the RCU (power on the low voltage crate in the measuring area)

Wait until the led-lamp on the RCU turns from red to green

Wait a few minutes before you start the DAQ program to let the RCU finish the boot (see

'Test that the RCU is working' *to check the RCU has booted*)

Wait 15 minutes before taking data/pedestal files after power on of FECs, this is to let the pedestals to become stable after warming up of the electronics

To log in on the monitor computer

Id: ilcdaq

Password: *****

To start up the DAQ control window

```
Type:      localdaq      enter
```

Password: *****

→ *opens the windows*

ILCDAQGUI-v2.5 (*DAQ control panel*) andilcdaq@flctpc-lunddaq (ilcdaq@lunddaq) *and*

ILCSERVER (the readout programs writes information in this window)

Test that the RCU is working

window: ilcdaq@flctpc-lunddaq (ilcdaq@lunddaq)

```
cd /misc/ilcdaq/test-v4.0
```

```
./poweronoff --fec 26 --off  enter  →  Status 0 if ok
```

alternatively ./rcudump *enter* $\rightarrow$ *a long list of messages if ok otherwise a few error messages*

To run a register test:

```
./poweronoff --fec 26 --on    enter    check that the currents are ok
```

`./regtest --fec 26 --loop 1000` *enter*

To set the RCU/FEC configuration

window: `ilcdaq@flctpc-lunddaq (ilcdaq@lunddaq)`

`cd /misc/ilcdaq/config-v4.2`

Edit: `emacs rcu-2.cfg`

→ *a table*
 set: `RCU.POWER` *defines which FEC's are powered*
 set: `RCU.READOUT` *defines which FEC's are read-out*

To start up the DAQ-program

If not done before:

Type: `localdaq` *enter*
Password: `*****`

→ *DAQ control window*

Tick: `load lookup tables at power on` *on the screen*

Click: `power on` *on the screen to power on and load
lookup tables*

If the program does not start go to window `ilcdaq@flctpc-lunddaq (ilcdaq@lunddaq)`

`cd /misc/ilcdaq/log-v4.2` *enter*

`ls -l *.pid` *enter* → *ilcserver.pid*

`rm ilcserver.pid` *enter*

Set preamplifier parameters:

Preamplifier enable: *unticked means shaped pulses*
 ticked means unshaped pulses
Gain: 0, 1, 2, 3 (12, 15, 19 and 27mV/fC respectively)
Shaping: 0, 1, 3, 7 (120, 90, 60 and 30 ns respectively)
Decay time: 0 – 2500

Load parameters by clicking: PcaLoad *on the screen*

Click: Start DAQ *on the screen*

If error messages when loading lookup tables at PowerOn

Tick: load lookup tables at start DAQ
Click: Start DAQ *on the screen*

As the lookup tables are loaded *Click:* Stop DAQ *on the screen*

Untick: load lookup tables at start DAQ

If lookup tables still not correctly loaded try again.

Start the monitor program

window: ilcdaq@flctpc-lundmon (ilcdaq@hurtig)

startmon *enter*

→ MONVIEW-v2.3 (*Monitor window*)

Choose RCU number (2)

Choose FEC number

Click online *on the screen*

In case you set the RCU and FEC numbers after you have clicked online:

Click FEC to monitor

Perform pedestal runs

Monitor program must be running (it calculates the pedestals).

window: ILCDAQGUI-v2.5 (DAQ control panel)

Click: Stop DAQ on the screen

Tick: pedestals on the screen

*Untick: pedestal subtraction
zero suppression
logging on the screen*

Choose: monitor in the unfolding menu on the screen

Fill out: Number of monitor events equal to 1

Fill out: Number of events to be recorded 300

Set preamplifier parameters to the values you want

1) Click: PcaLoad on the screen to load parameters

2) Click: Start DAQ on the screen

3) Click: Start run on the screen

4) Click: Status on the screen to see that everything is ok

When run stops change the PCA parameters:

5) Click: Stop DAQ on the screen and go to 1)

Find pedestal runs

window: ilcdaq@flctpc-lundmon (ilcdaq@hurtig)

cd go to main directory

cd ~/ilcdaq/analys/pedestals/ go to pedestal analysis directory

ls -lrt ~/root/pedestals/ list pedestal files taken

rm pedestals-2- remove specific pedestal files*

ls pedestals- list pedestal files*

rm pedestals-* *remove all pedestal files*

cp ~/root/pedestals/pedestals-2-80-500.new . *copy new pedestal file*

./anasum.sh *analyses pedestal runs*

acroread combined.pdf & *plots the pedestal runs*

or close pedestal window before you are proceeding

pedcopy *copies pedestal files to /misc/ilcdaq/config-v4.2 on flctpc-lunddaq*

Change zero suppression threshold and sampling time

Window: ilcdaq@flctpc-lunddaq (ilcdaq@lunddaq)

cd /misc/ilcdaq/config-v4.2

Edit: emacs global-altro.physics

Change threshold in table: ZSTHR.ZS_THR *number*

Change sampling time: TRCFG.ACQ_END *number (0-1000)*

Sampling times used: 300 when shaping mode, 1000 when non-shaping mode

Save

Exit

Start a run (see below) and check in the monitor window that the 'event display' and the number of clusters (NBCLUSTERS) look reasonable (NBCLUSTERS < 2000).

Data run

window: ILCDAQGUI-v2.5 *(DAQ control panel)*

Set preamplifier parameters

Click: PcaLoad *on the screen*

Tick: Physics
Pedestal subtraction
Zero suppression
(Logging) *on the screen*

Choose: read events in the unfolding menu on the screen

Fill out the number of events that should be recorded (0 means no upper limit)

Click: Start DAQ on the screen

Fill out the number of events that should be monitored e.g. 5 means every 5th event

Click: Start run on the screen

Switch off the system

window: ILCDAQGUIv2.5 (DAQ control panel)

*Click: Stop run
 Stop DAQ
 Power off
 Exit on the screen*

window: MONVIEW-v2.3 (Monitor window) and do exit

Go to: Monitor-v5.0 ctr-C

Go to: ILCSERVER ctr-C

Go to: ilcdaq@flctpc-lunddaq (ilcdaq@lunddaq) exit

Switch off the power for the RCU

To check what directory you are in

pwd enter

To take a script

Click: Script on the screen → a popup window

Mark: pedestals.run open

Click: Start Script on the screen