# Table of Contents

**Shifter's Guide**

1. SSD shifter's todo list...........................................................................................................1
2. Basic troubleshooting.............................................................................................................2
3. Detector Control System.......................................................................................................3
   3.1 How to start the detector control system user interface...................................................3
   3.2 How to power up the detector..........................................................................................3
   3.3 How to power down the detector....................................................................................3
   3.4 How to exclude a half-ladder..........................................................................................3
   3.5 How to exclude a half-sector...........................................................................................4
4. Data Acquisition system........................................................................................................4
   4.1 How to start the DAQ system...........................................................................................4
   4.2 How to include DDLs......................................................................................................4
   4.3 How to configure the busy mask....................................................................................5
   4.4 How to run in a standalone mode...................................................................................7
      4.4.1 Using the DCA........................................................................................................7
      4.4.2 Using the Run Control............................................................................................7
   4.5 How to start pedestal runs.............................................................................................8
   4.6 How to prepare the detector for a global run.................................................................9
5. Online Monitoring................................................................................................................10
   5.1 How to run MOOD..........................................................................................................10
   5.2 How to run AMORE........................................................................................................12
      5.2.1 Description of the monitored objects......................................................................15
Shifter's Guide

• SSD shifter's todo list

• Basic troubleshooting

• Information on how to switch ON/OFF (parts of) the detector (Detector Control System)
  - How to start the detector control system user interface
  - How to power up the detector
  - How to power down the detector
  - How to exclude a half−ladder
  - How to exclude a half−sector

• Information on how to setup the detector for a run (Data Acquisition System)
  - How to start the DAQ system
  - How to include DDLs
  - How to configure the busy mask
  - How to run in a standalone mode
  - How to start pedestal runs
  - How to prepare the detector for a global run

• Online monitoring: MOOD − AMORE
  - How to run MOOD
  - How to run AMORE

The shifter manual in a pdf format can be found here.

1. SSD shifter's todo list

The basic duties of the SSD shifter is to take calibration runs whenever this is possible (see below), monitor the quality of the data recorded and react in case of problems by either taking action herself/himself or by calling the expert whenever this is needed. Below you can find the basic todo list for the SSD shifter.

• Based on the current policy, there is a dedicated daily time slot (currently between 09:00 and 10:00 the so called happy hour) during which the sub−detectors are allowed to take calibration and standalone runs.
  ◆ After making sure that the run has finished, request the SSD lock from the ECS shifter.
  ◆ Take the lock from the SSD's DCA.
  ◆ Take a pedestal run
  ◆ Take a standalone run of ~1K triggers and look the data size of the output file for each LDC. Keep in mind that for this to happen you need to have the LDC recording ON.
  ◆ If the data size is ok (no large differences between the LDCs) then this is an indication that everything is ok.
  ◆ Release the SSD lock from the DCA.
  ◆ Inform the shift leader or/and the period coordinator that the SSD is ready to join the global partition.
  • While being in the global partition, monitor the online data by running AMORE.
    ◆ In case warning are issued, please keep track of them.
    ◆ It is also advised to use the SSD GUI functionality and save the histograms that look
These histograms should be uploaded to the electronic logbook. The way to do this is to first move them with a simple scp to the ACR machines (either aldaqacr20 or aldaqacr21). Then go to the logbook, select the menu "Runs-->Statistics". Select the run you want to upload the file to by clicking on the pencil like icon (if you leave the cursor over this icon you will see the message "Add a Log Entry to this run". In this new window, select the subsystem (SSD), write a title that describes the entry, write some meaningful description of the plots and use the "Attach a new file" interface to choose and upload the eps plots.

- The SSD shifter is advised to monitor the list of warnings issued at the PVSS panel. Usually this is already displayed in one of the two monitors of the DCS project. In case of a real warning (e.g. a warning which is still active) the shifter should go to the top level of the FSM, find the corresponding half–ladder and right click on it. In the new window that will appear, the shifter needs to check the Iset and Iwarn value of the channel that issued the warning.
  - If the Iset and Iwarn have a big difference (e.g. Iset = 150½' and Iwarn = 30½') and the real time value of the current is e.g. I = 40½', then no action needs to be taken.
  - If the Iset and Iwarn have a big difference (e.g. Iset = 150½' and Iwarn = 30½') and the real time value of the current has reached e.g. I = 130½', then one needs to consult with the SSD expert on call.
  - In the case where the shifter either decides on her/his own or after a suggestion by the SSD expert to switch off and disable a half–ladder, then this means that the SSD configuration has changed. A new pedestal run MUST be taken.

2. Basic troubleshooting

Below you can find the latest list of problems that we have seen the last weeks and how you can recover from them. The basic instructions are the following:

- Don't panic!
- Blame someone else!!

The list of recent problems can be seen below:

- When trying to get a pedestal or even a standalone run you get an error in the InfoBrowser indicating something like: "ReadEvent RorcData: eqId=XXX, (ERROR 357) CDH trigger error bit(s) present in CDH..."
  - The way to recover from this situation is to go to the VME crate for the SSD (the trigger window) and select Configuration-->TTCinit.
- While trying to get a pedestal or even a standalone run you get an error in the InfoBrowser indicating something like: "... (No space left on device)..."
  - The way to recover from this situation is to go to the second desktop of the left hand side SSD monitors where we keep the terminals connected to the three SSD LDCs and type df. Most probably one of the LDCs' disk is full. Try to remove the unnecessary files (standalone or/and pedestal runs) or the latest ones. For confirmation you should contact the on call SSD expert.
- While being in the global partition the SSD is accused of being dead at the beginning of the run.
  - Ask the ECS shifter to check carefully the SSD LDC configuration. From time to time we have noticed that while trying to build the partition the configuration is not the correct one (e.g. one LDC is missing) which has as a consequence that the reset command is not properly propagated to all the DDLs thus resulting into part of the detector not being ready.
  - While being in the global partition the SSD is accused of having the FERO status NOT READY.
  - Ask the ECS shifter to follow the official SSD instructions that is: handle the SSD from the individual PCA up to the point where he/she issues the command INIT_FERO. Be careful that the ECS shifter has to issue first the command RESET_FERO or GET_DAQ_RESOURCES in order to get the option INIT_FERO.
While being in the global partition the run stops and the SSD is accused due to the InfoBrowser message "TTCinit(): detector not ready in 5 seconds after FEEreset"

- Explain the ECS shifter that it is NOT an error, it is SSD normal behaviour. In fact the level is "info" and not "error"!
- In case of problems related to the cooling plant, please consult the cooling plant manual for the SSD shifter.

3. Detector Control System

3.1 How to start the detector control system user interface

- Launch 'tsclient' from a terminal.
- Connect to 'ALISSDON001' (Operator Node), using NICE user name and password.
- Click Windows 'Start' button and select 'Start Alice User Interface'

3.2 How to power up the detector

- Open FSM Control Panel (upper left FSM button), while the top node (SSD_DCS) is selected in the FSM tree.
- Take control (if it is not already taken) by clicking on the lock of the top node and select 'Take'.
- Click on the top node and select the commands to send to get in READY state:
  - From OFF state send GO_STANDBY (it will power on the Jtag box and EASY Crates 48V).
  - From STANDBY send CONFIGURE (it will power on the LV power supplies of the SSD).
  - From STBY_CONFIGURED send GO_READY (it will power on the HV and program the front end chips).

3.3 How to power down the detector

- Open FSM Control Panel (upper left FSM button), while the top node (SSD_DCS) is selected in the FSM tree.
- Take control (if it is not already taken) by clicking on the lock of the top node and select 'Take'.
- Click on the top node and select the commands to send to get in OFF state:
  - From READY state send GO_STBY_CONF (it will power off the HV and de-program the front-end chips).
  - From STBY_CONFIGURED send GO_STANDBY (it will power off the LV).
  - From STANDBY send GO_OFF (it will power off the Jtag box and the EASY Crates 48V).

3.4 How to exclude a half-ladder

- Verify it is fully off
- Select in FSM Tree the half-sector of this half-ladder and open the FSM Control Panel (upper left FSM button or right-click on the Half-Sector in FSM Tree and select 'OPEN FSM CONTROL')
- In the FSM Control Panel, click on the lock of the half-ladder to remove and select 'Disable'.
- If there are no half-ladder left enabled in this half-sector, the half-sector has to be excluded.
3.5 How to exclude a half-sector

- Select in FSM Tree the Side of this Half-Sector and open the FSM Control Panel (upper left FSM button or right-click on the Side in FSM Tree and select 'OPEN FSM CONTROL')
- In the FSM Control Panel, click on the lock of the Half-Sector to remove and select 'Exclude&Lockout'.

4. Data Acquisition system

The SSD workstation in the control room is equipped with two computers named \texttt{aldaqacr020} and \texttt{aldaqacr021} and four monitors that can be used by the shifters and the experts. In order to login to the machines but also to activate the monitors from the screensaver one has to put the following user name and password:

- User name: ssd
- Password: \textit{check the SSD notebook}

4.1 How to start the DAQ system

You have to click on the \texttt{DateHI} icon (looks like the GNU icon) which is the third button on the \texttt{icewm} taskbar. Once you launch the application you will see three windows appearing:

- The main ECS window
- The InfoBrowser
- The Detector Control Agent – DCA

4.2 How to include DDLs

The DDLs active for each run can be configured from the main ECS window. Click on the fourth button of this window with the indication \textit{select equipment}. 

---

**3.5 How to exclude a half-sector**

---

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---

**3.5 How to exclude a half-sector**
The window that allows to configure the DDLs will appear. Select the DDLs from this window and then press commit to activate your selection.

A−Side DDLs:

- 512, 513 (LDC−SSD−09−10−0) = computer aldaqpc174
- 514, 515 (LDC−SSD−11−12−0) = computer aldaqpc175
- 516, 517 (LDC−SSD−13−14−0) = computer aldaqpc176
- 518, 519 (LDC−SSD−15−16−0) = computer aldaqpc177

C−Side DDLs:

- 520, 521 (LDC−SSD−01−02−0) = computer aldaqpc170
- 522, 523 (LDC−SSD−03−04−0) = computer aldaqpc171
- 524, 525 (LDC−SSD−05−06−0) = computer aldaqpc172
- 526, 527 (LDC−SSD−07−08−0) = computer aldaqpc173

4.3 How to configure the busy mask

Once the DDL configuration has changed, we need to modify the busy mask accordingly. This we do from the *alidescom026* machine.

- Username: ssd
- Password: *check the SSD notebook*

4.2 How to include DDLs
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| Bit | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9  | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  | 0  |
|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| DDL | -- | -- | -- | -- | 525| 524| -- | 523| -- | 522| -- | 521| 520| 519| 518| 517| 516| 515| 514| 513| 512| 511| 510|

**Fanin survival kit**

<table>
<thead>
<tr>
<th>mask</th>
<th>hex</th>
<th>mask</th>
<th>hex</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0000</td>
<td>8</td>
<td>1000</td>
</tr>
<tr>
<td>1</td>
<td>0001</td>
<td>9</td>
<td>1001</td>
</tr>
<tr>
<td>2</td>
<td>0010</td>
<td>a</td>
<td>1010</td>
</tr>
<tr>
<td>3</td>
<td>0011</td>
<td>b</td>
<td>1011</td>
</tr>
<tr>
<td>4</td>
<td>0100</td>
<td>c</td>
<td>1100</td>
</tr>
<tr>
<td>5</td>
<td>0101</td>
<td>d</td>
<td>1101</td>
</tr>
<tr>
<td>6</td>
<td>0110</td>
<td>e</td>
<td>1110</td>
</tr>
<tr>
<td>7</td>
<td>0111</td>
<td>f</td>
<td>1111</td>
</tr>
</tbody>
</table>

To check the busy mask status type: `fanin status`

To enable a new busy mask type: `fanin enable 0xBUSY_MASK`, where `BUSY_MASK` is the mask that can be calculated from the previous table.

To save a busy mask as default type: `fanin save 0xBUSY_MASK`. At the moment the default mask is set to be the one that corresponds to full SSD configuration.

An example is shown below:

- `fanin enable 0x6cf00`
- `fanin status`
  - `FANIN: ssd BUSY_MASK: 6cf00 READ_INPUTS: ffffffff`
  - `DDDDDEEDEEEEDDEEEDDDDDDDDDDDD`
  - `11111001001100001111111111111111`

4.3 How to configure the busy mask
Another example will be the following: assume that we would like to include the following DDLs: 516, 521 and 527. Then the busy mask should look like this:

```
 0000 0000 0000 1010 0000 0001
 0 0 0 a 0 1
```

We have to type: `fanin enable 0xa01`

### 4.4 How to run in a standalone mode

#### 4.4.1 Using the DCA

*This is the default way of running in a standalone mode unless it is requested to run from the run control*

- Start the `DataHI`
- Get the lock of the DCA
- Select the DDL configuration:
  - From the main ECS window select the button `select equipement`
  - Select the DDLs for this run
  - Press *Commit* to activate the changes and then *Quit*
- Set the busy mask
  - Log in the `alidcscom026` machine
  - Set the proper busy mask by following the table of the previous paragraph (`fanin enable 0xBUSY_MASK`)
  - Check the fanin status by typing `fanin status`
- Release the lock of the `DAQ_RC` from the main DCA.
- Take the lock at the *Run Control*
  - On the first column of the *Run Control* press the *Define* button.
  - Press the *Detector* button and on the new window select the SSD LDCs that should be active according to the DDL configuration of this run.
  - Release the lock from the *Run Control* and get it from the DCA
- From the main DCA window do the following:
  - From the top DCA button's drop down menu select `RESET_FERO`
  - From the same menu select `GET_DAQ_RESOURCES`
  - From the same menu select `INIT_FERO`
  - From the same menu select `STANDALONE_RUN`

#### 4.4.2 Using the Run Control

- Start the `DataHI`
- Get the lock of the DCA
- Select the DDL configuration:
  - From the main ECS window select the button `select equipement`
Select the DDLs for this run
* Press `Commit` to activate the changes and then `Quit`  

Set the busy mask
* Log in the `alidescom026` machine
* Set the proper busy mask by following the table of the previous paragraph (fanin enable 0xBUSY_MASK)
* Check the fanin status by typing `fanin status`

From the main DCA select the Show Trigger Control from the view menu
* Select the CTP emulator
* In the new window choose as a sequence the `L2a.seq`
* Press the Load sequence button
* Select BC as an automatic start signal
* In the next text box put the desired rate (e.g. 10 ms, 100 us)
* Select BC again to convert the rate
* Press the Start emulation button

Release the lock of the DAQ_RC from the main DCA.

Take the lock at the Run Control
* On the first column of the Run Control press the Define button.
  ◊ Press the Detector button and on the new window select the SSD LDCs that should be active according to the DDL configuration of this run.
* On the second column of the Run Control press the Define button
  ◊ Set the number of sub−events to the desired number
  ◊ Set the startOfData/endOfData event enabled to 0 *This is only used in the case where the standalone run is performed from the Run Control*
* Move to the third column of the Run Control and press Start processes
* Move to the fourth column of the Run Control and press Start

4.5 How to start pedestal runs

Pedestal run should be done locally by using DCA (not by DAQ people by using ECS)  
First part is similar to a standalone run

* Start the DateHI
* From the Alice DAQ click on the detector files button.
  ◆ Look for and select the file `notm` in the browser that opens.
  ◆ Click on the Edit button. An editor will open.
  ◆ If needed (in case the entry is 0x40004000) change the entry of the notm file to 0x00000000. This will enable the sending of the CM values needed by the DA.
  ◆ Close the editor and select Save
* Get the lock of the DCA
* Select the DDL configuration (in normal circumstances the DDL configuration is already defined – please consult the expert):
  ◆ From the main ECS window select the button select equipement
  ◆ Select the DDLs for this run
  ◆ Press Commit to activate the changes and then Quit
* Check LDCs are activated according to the DDL configuration (in normal circumstances the LDC configuration is already defined – please consult the expert):
  ◆ Go to the Run Control window: on the first column press the Show button and press the Detector button and on the new window press SSD: a new window appears: check active LDC (yellow) are in accord with the selected DDLs
  ◆ If they are not, exit from Show (press OK), and
    ◊ Take the lock at the Run Control
    ◊ On the first column of the Run Control press the Define button.

4.4.2 Using the Run Control
Press the Detector button and on the new window select the SSD LDCs that should be active according to the DDL configuration of this run.

- first Save then exit with OK

- Set the busy mask (in normal circumstances the busy mask is already defined – please consult the expert)
  - Log in the alidcscom026 machine
  - Set the proper busy mask by following the table of the previous paragraph (fanin enable 0xBUSY_MASK)
  - Check the fanin status by typing fanin status

- From the main DCA window do the following:
  - From the top DCA button's drop down menu select PEDESTAL_RUN

That will:

- Upload into the FEROMs the "ZeroPedestal, Nosuppression" settings
- Take a run of 500 events.
- Launch the detector algorithm (DA) in the LDCs (DA runs locally on the LDCs). The DA will create two files in any LCD:
  - ITSSSDDa_[LDC#].root : it is the file which will be used to by FXS
  - ssddaldc_[LDC#].root : it is the file which will be used to compute the files with offsets and thresholds for FEROM

### 4.6 How to prepare the detector for a global run

- Start the DateHI
- From the Alice DAQ click on the detector files button. This action should be taken after consulting the expert.
  - Look for and select the file notm in the browser that opens.
  - Click on the Edit button. An editor will open.
  - If needed (in case the entry is 0x00000000) change the entry of the notm file to 0x40004000. This will disable the sending of the CM values.
  - Close the editor and select Save
- Get the lock of the DCA
- Select the DDL configuration:
  - From the main ECS window select the button select equipement
  - Select the DDLs for this run
  - Press Commit to activate the changes and then Quit
- Set the busy mask
  - Log in the alidcscom026 machine
  - Set the proper busy mask by following the table of the previous paragraph (fanin enable 0xBUSY_MASK)
  - Check the fanin status by typing fanin status
- Take the lock at the Run Control
  - On the first column of the Run Control press the Define button.
    - Press the Detector button and on the new window select the SSD LDCs that should be active according to the DDL configuration of this run.
  - Release the lock from the Run Control and get it from the DCA
- From the main DCA window do the following:
  - From the top DCA button's drop down menu select RESET_FERO
  - From the same menu select GET_DAQ_RESOURCES
  - From the same menu select INIT_FERO
5. Online Monitoring

The SSD has a dedicated DQM with the name \textit{aldaqdqm03}. Log into this machine with the standard username and password. For the online monitoring of raw data registered either at the LDC or at the GDC level we have two available frameworks:

- MOOD: It is more expert oriented since it gives the possibility to monitor objects (raw signal, pedestal, common mode, common mode subtracted noise etc.) down to the strip or chip level.
- AMORE: It is used mainly by the regular shifters.

5.1 How to run MOOD

In the \textit{aldaqdqm03} terminal type \textit{mood}. The main MOOD window will appear, inside of which you select SSD and the Cosmic Run 2007 from the Detector menu as shown in the snapshot below.

When selecting the \textit{Setup Monitor} button (top left) the DATE Monitor Configuration window pops up, inside of which you can configure the monitoring source.
Syntax Usage

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>:</td>
<td>Local online</td>
</tr>
<tr>
<td>file</td>
<td>Local file (full path)</td>
</tr>
<tr>
<td>@host:</td>
<td>remote online on node host</td>
</tr>
<tr>
<td>file@host</td>
<td>remote file on node host (full path)</td>
</tr>
<tr>
<td>@host1@host2:</td>
<td>remote online on node host1 via the relay host host2</td>
</tr>
<tr>
<td>file@host1@host2:</td>
<td>remote file on node host1 via the relay host host2</td>
</tr>
</tbody>
</table>

Then press the OK button and close this window. The next step would be to press the Start Event Loop button and once the status bar reaches the 100% you select the Calculation button.

The MOOD GUI has several tabs as shown in the snapshot below. What can be seen on each tab is the following:

- **DATE Monitor**: Event statistics
- **MOOD Log**: The log entries
- **ADCvalue_1**: The raw signal distribution of the selected module
- **ADCvalue_2**: The raw signal distribution of all the module of this ladder (EqId, Slot, ADC)
- **Ped_1**: The pedestal distribution for the selected module
- **Ped_2**: The pedestal distribution for all the modules of this ladder (EqId, Slot, ADC)
- **NoiseT_1**: The signal distribution after the pedestal subtraction of the selected module
- **NoiseT_2**: The signal distribution after the pedestal subtraction of all the modules of this ladder (EqId, Slot, ADC)
- **CM_1**: The common mode correction for each chip of the selected module
- **CM_2**: The common mode correction for each chip of all the modules of this ladder (EqId, Slot, ADC)
- **Noise_1**: The signal distribution after the CM correction of the selected module
- **Noise_2**: The signal distribution after the CM correction of all the selected modules of this ladder (EqId, Slot, ADC)
- **Occ_1**: The occupancy of the selected module
- **Occ_2**: The occupancy of all the modules of this ladder (EqId, Slot, ADC)
5.2 How to run AMORE

The SSD has a dedicated AMORE agent called **amoreAgentSSD01**. The implementation comes with a first version of the SSD AMORE Graphical User Interface (**GUI**) the module's name being **SSDUIQA**. On top of this GUI, DAQ offers the possibility to use a generic one, with the name **GenericGui**. For the time being, and until we finalize the SSD one, we can use both!

- Open a terminal on **aldaqacr20** and login to the **aldaqdqm03** as the **ssd** user (the password is the same as for the computers of our workstation).
- Start the Amore run script by typing: `*launchAmore*`
- The following window will appear:

![Amore Run Script Window]

Press enter. Now the script asks for the agent to run. At this moment only the default SSD agent (**amoreAgentSSD01**) is working.
Press enter. In the next window select the source of the data. This can be either from the GDC, from a LDC or from a locally stored file.

- **LDC** – When "LDC" is selected as a source, the following window appears. Select the appropriate LDC.
• **Local** – When "Local" is selected as a source, the following window appears. Enter the file path and name of the raw file.

In the next window, select the desired Graphical User Interface:

Press enter. The window appears in which one must select the run type. Choose the appropriate option.
In case of online monitoring, now insert the run number. This can be found in the SSD Detector Control Agent (DCA) window.

![Run number window](image)

After submitting the run number, the agent will be launched.

![Agent launch window](image)

Wait a few seconds to allow the agent to initialize the histograms. Then press enter to start the selected GUI.

### 5.2.1 Description of the monitored objects

The SSD dedicated GUI will be used for the time being as the tool to monitor the top *level* histograms. Parameters like event type, data size, top level occupancy plots will be monitored from this interface. The generic GUI will be used for the monitoring of the occupancy of each module.

#### SSD GUI – SSD Data size tab

In the first tab of the SSD GUI we can monitor the following parameters:

- Event type (EVENT_TYPE==7 means physics event)
- The distribution of the SSD data size in KB.
- The percentage of the SSD data size with respect to the DAQ event. At the moment this information is not available due to the fact that the DAQ event size information is not available from the offline classes (to be provided soon).
- The average SSD data size in KB as a function of the DDL.
SsdShifterHowTo < AliceSSD < TWiki

- The average SSD data size in KB as a function of the LDC. Please keep in mind the following naming scheme (that will be decoded properly within the GUI soon):

A−Side DDLs:

- 512, 513 (LDC−SSD−09–10–0) = computer aldaqpc174
- 514, 515 (LDC−SSD−11–12–0) = computer aldaqpc175
- 516, 517 (LDC−SSD−13–14–0) = computer aldaqpc176
- 518, 519 (LDC−SSD−15–16–0) = computer aldaqpc177

C−Side DDLs:

- 520, 521 (LDC−SSD−01–02–0) = computer aldaqpc170
- 522, 523 (LDC−SSD−03–04–0) = computer aldaqpc171
- 524, 525 (LDC−SSD−05–06–0) = computer aldaqpc172
- 526, 527 (LDC−SSD−07–08–0) = computer aldaqpc173

Below you can find a snapshot of the first tab:

In the second tab of the SSD GUI we can monitor the following parameters:

- The LDCs that were found for this run

5.2.1 Description of the monitored objects
For each LDC (082: top right, 086: bottom left, 085: bottom right) we plot the SSD data size.

Below you can find a snapshot of the second tab:

SSD GUI – DDL tab

In the third tab of the SSD GUI we can monitor the following parameters:

- The DDLs that were found for this run
- For each DDL (512: top left, 527: bottom right) we plot the SSD data size.

Below you can find a snapshot of the third tab:

5.2.1 Description of the monitored objects
SSD GUI – Layer Occupancy tab

In the fourth tab of the SSD GUI we can monitor the occupancy per layer. Keep in mind that for each plot we have one blank horizontal line, whereas the two next are showing the occupancy for p and n-side respectively. The plots show the following parameters:

- On the first column we plot the occupancy for each SSD data cycle (z-axis), for each module (x-axis) of each ladder (y-axis). The top plots represents layer 5 whereas the bottom one layer 6. The occupancy on these plots is defined as the number of fired strips (no matter what the occupancy of each strip is) divided by the total number of strips.
- On the second column we plot again the occupancy for each SSD data cycle (z-axis), for each module (x-axis) of each ladder (y-axis). The occupancy on these plots is defined as the number of fired strips with occupancy > 3% divided by the total number of strips. The top plots represents layer 5 whereas the bottom one layer 6.
- On the third column we plot the average occupancy for each SSD data cycle (z-axis), for each module (x-axis) of each ladder (y-axis). The top plots represents layer 5 whereas the bottom one layer 6.

Below you can find a snapshot of the fourth tab:

5.2.1 Description of the monitored objects
SSD GUI − Bad Channels tab

In the fifth tab of the SSD GUI we can monitor the output of the DA. In particular we monitor the bad p−side channels for layer 5 and 6 (left hand side plots) and the corresponding bad n−side channels (right hand side plots).

Below you can find a snapshot of the fifth tab:

5.2.1 Description of the monitored objects
SSD GUI – Common Mode tab

In the sixth tab of the SSD GUI we can monitor the common mode noise as it is calculated and sent by the firmware. In particular we monitor the \textit{rms} of the CM distributions of each SSD module for both sides and layers.

Below you can find a snapshot of the sixth tab:
SSD GUI – Module Occupancy tab

The last tab of the SSD GUI has two functions. First, in the upper menu, it allows the user to select the occupancy plots per module. In the first combo box the layer must be selected, in the next the ladder, and lastly the desired module. Press **Draw** to subscribe and draw the occupancy histogram for this module. This may take a few seconds.

Besides that, any of the top level histograms from the first five tabs can be displayed here, on the large canvas, too. Select the category (i.e. the tab that the smaller version is displayed on) and the histogram in the two combo boxes from the bottom menu. Press **Enlarge** to draw the histogram.

Below you can find a snapshot of the last tab:

5.2.1 Description of the monitored objects
Another way to monitor the occupancy plots per module is to use the Generic GUI. Below you can find a snapshot of the one of the plots that can be selected:

5.2.1 Description of the monitored objects
The SSD QA code is built in such a way to provide a directory structure to facilitate the easy navigation through the monitored objects. The directories that are created are listed below:

- **BadChannels**: Contains the 4 histograms with the bad channel map for both layers and sides (p and n).
- **DDL**: Contains the histogram that shows the DDLs that are read out along with the data size distribution for each DDL.
- **LDC**: Contains the histogram that shows the LDCs that are read out along with the data size distribution for each LDC.
- **DataSize**: Contains the histogram with the event type, the SSD data size, the percentage of SSD data size with respect to the DAQ event, along with the average data sizes per DDL and per LDC.
- **Occupancy**: Contains two subdirectories, one for each layer. For each such directory we have several subsequent directories that represent the ladder segmentation. Inside each ladder directory we have the occupancy plots per module, along with the occupancy summary for each ladder for the p and n side strips. At the top layer level we also store the 3 occupancy plots (occupancy per module, occupancy per module with a threshold of 3% and average occupancy per module).

A snapshot showing the segmentation of the SSD QA code can be seen in the picture below:
For any suggestions or problems, please contact Panos.

-- PanosChristakoglou – 01 Jun 2008

This topic: AliceSSD > SsdShifterHowTo

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5.2.1 Description of the monitored objects