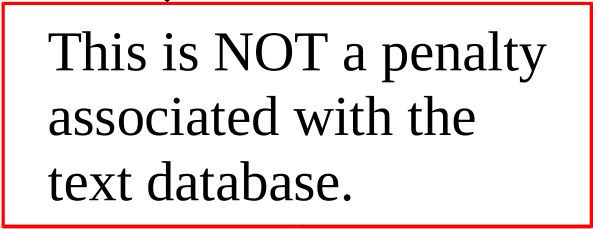


Silicon Tracking at Level3

Potential Issues :

- No connection to Oracle DB online.
 - ➔ Silicon reconstruction must be capable of running off the text database.
- Time taken to export silicon calibrations
 - ➔ Increases from 10s → 45s.
- Time taken in (**beginRun** + first **event**)
 - ➔ 20–30 s.
 - ➔ Overall : an extra **1 minute** to start the run.
- Silicon clustering performance online
 - ➔ Time.
 - ➔ Comparison with results of running offline.



This is NOT a penalty associated with the text database.

Structure of the Text Database :

```
Dave (pc52.hep.ucl.ac.uk) -> ls -al DATA/SI*
```

385	Oct	9	11:33	DATA/SIALIGNBARREL.100030.1.99670.GOOD.UNDEFINED.txt
54	Oct	9	11:33	DATA/SIALIGNFRAME.100030.1.99668.GOOD.UNDEFINED.txt
12552	Oct	9	11:33	DATA/SIALIGNLADDER.100030.1.99672.GOOD.UNDEFINED.txt
78516	Oct	9	11:33	DATA/SIALIGNWAFER.100030.1.99674.GOOD.UNDEFINED.txt
37422	Oct	9	11:34	DATA/SIALIGNWARP.100030.1.99676.GOOD.UNDEFINED.txt
9339271	Oct	9	11:34	DATA/SICHIPPED.139249.2.69274.COMPLETE.UNDEFINED.txt
6	Oct	9	11:34	DATA/SIFIBOFFSETS.111193.1.22743.COMPLETE.UNDEFINED.txt
162983	Oct	9	11:34	DATA/SISTRIPDH.139213.1.69266.COMPLETE.UNDEFINED.txt

Validation of the Text Database :

- In a test program, read in the same jobset from a text database and from Oracle and do a "diff" on the transient result container contents. This is what the application sees.

OTL : size of container for table SiChipPed = 4020

**16384 837e7a7979797a7a7a79777979797979797979797a7979797878797979787a787a
78797879787977797779787878797878777878787977777977787978787778787878787777
78787777787878777878787978787977787779777877777778787877777777767676767677
767775767577767...**

TEXT : size of container for table SiChipPed = 4020

16384 837e7a7979797a7a7a79777979797979797979797a7979797878797979787a787a
78797879787977797779787878797878777878787977777977787978787778787878787777
78787777787878777878787978787977787779777877777778787877777777767676767677
767775767577767...

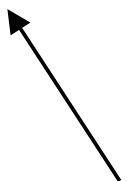
Works in 4.8.3

Silicon Clustering from a Text Database :

- Some of the silicon code takes advantage of more advanced Oracle features (e.g. Views) and queries not available to the text database.
- The code has been given switches to avoid these (Maksimovic, Herndon, Nielsen, Waters, ...)
- Works in 4.8.3 with **SiClusteringModule** in the following mode :

```
mod talk SiClusteringModule
  UseNNChipThreshold set false
  StripCorrectorMenu
    InLevel3 set t
    UseL00PedFit set f
  exit
  ...
exit
```

- ➔ No pedestal corrections.
- ➔ Dead/Hot channels marked
[**SISTRIPDH**]
- ➔ Strip noises used in clustering
[**SICHIPPED**]



This is what we need "blessed" by experts

Check "level-3" mode reconstruction :

- Take data from runs with FIB pedestal subtraction. Run full offline silicon clustering (which can recover 0.5 ADC count precision) and "level-3" mode clustering :

Full Offline :

SiClustering: Ncluster = 5290 Nhit = 5290
SiClustering: Ncluster = 5766 Nhit = 5766
SiClustering: Ncluster = 5658 Nhit = 5658
SiClustering: Ncluster = 6370 Nhit = 6370
SiClustering: Ncluster = 5862 Nhit = 5862
SiClustering: Ncluster = 6827 Nhit = 6827
SiClustering: Ncluster = 5952 Nhit = 5952
SiClustering: Ncluster = 5749 Nhit = 5749

Level-3 Mode :

SiClustering: Ncluster = 5329 Nhit = 5329
SiClustering: Ncluster = 5849 Nhit = 5849
SiClustering: Ncluster = 5720 Nhit = 5720
SiClustering: Ncluster = 6457 Nhit = 6457
SiClustering: Ncluster = 5938 Nhit = 5938
SiClustering: Ncluster = 6975 Nhit = 6975
SiClustering: Ncluster = 6024 Nhit = 6024
SiClustering: Ncluster = 5798 Nhit = 5798

→ Preliminary : differences at track level much smaller

Summary and next steps :

- From a level-3 infrastructure point of view, **4.8.3 looks good for SVX.**
- I can provide event samples after clustering in two different modes :
 - Full Offline
 - "Level-3" Mode
- Experts should run tracking on each and examine under the microscope.