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General

Setting up

Please use CMSSW_4_X_Y.

```
cd $CMSSW_BASE/src
cvs co UserCode/yetkin/ZeroSuppression
cvs co -d CmsHi/JetAnalysis UserCode/CmsHi/JetAnalysis
scram b
```

To be successfully setup, you need also to do:

```
cvs co -d edwenger/HiTrkEffAnalyzer UserCode/edwenger/HiTrkEffAnalyzer
cvs co -d edwenger/HiVertexAnalyzer UserCode/edwenger/HiVertexAnalyzer
cvs co -d MNguyen/InclusiveJetAnalyzer UserCode/MNguyen/InclusiveJetAnalyzer
cvs co RecoHI/HiJetAlgos
scram build -c
```

before doing scram b.

The useful scripts and the database files are in UserCode/yetkin/ZeroSuppression

Running ZS on RAW

Since the RAW data from 2010 run is not zero suppressed, we can use the ZS producers for MC on this data.

Hcal

ZS parameters

Ecal

Producing payloads

The configuration to produce payloads is

`UserCode/yetkin/ZeroSuppression/python/srCondWrite_cfg.py`

. There is a script:

`UserCode/yetkin/ZeroSuppression/python/createTags.sh`

, which runs this cfg many times for different parameters selected for Ecal readout. Each set of settings is saved as a different tag, in the same db file. A text file is produced (

`Tables.txt`

), with the tables containing information of the tags.

Running various ZS configurations

Once the db file is created, the configuration:

`UserCode/yetkin/ZeroSuppression/python/applyEcalZS.py`

can run on the data to produce ecal hits with the corresponding readout mode. The configuration is setup in a way that one can pass the label that specifies the readout mode as an argument, and a script can be used to run many configurations in a row:

`UserCode/yetkin/ZeroSuppression/python/runAllModes.sh`

SR and ZS parameters

Here are the parameters that are proposed to play with are listed:

Parameter	type	default	explanation	final
deltaEta	int	1	Neighbor eta range	
deltaPhi	int	1	Neighbor phi range	
srpBarrelLowInterestChannelZS	double	2.25*0.035	ZS threshold in GeV for low interest channels of barrel	
srpEndcapLowInterestChannelZS	double	3.75*0.06	ZS threshold in GeV for low interest channels of endcap	
srpBarrelHighInterestChannelZS	double	-1.e9	ZS threshold in GeV for high interest channels of barrel	

srpEndcapHighInterestChannelZS	double	-1.e9	ZS threshold in GeV for high interest channels of endcap
.ecalDIgis.trigPrimBypass	bool	Flase	Selective readout switch
.ecalDIgis.trigPrimBypassMode	int	0	Selective readout debug mode
trigPrimBypassLTH	double	1.0	Selective readout threshold in GeV for lower threshold
trigPrimBypassHTH	double	1.0	Selective readout threshold in GeV for higher threshold

Example

If you want to turn off the selective readout but use only zero suppression.

- trigPrimBypassLTH = 1e9
- trigPrimBypassHTH = 1e9
- ecalDIgis.trigPrimBypass = True
- |.ecalDIgis.trigPrimBypassMode = 1 (otherwise it will use the trigger primitives information generated before re-digi

```
Hi,
The ZS is done in the DCC in the following way:
The data sent in gain 12.
From the 10 time samples, 6 are selected to calculate a weighted sum, the first sample used is se

The value of L1ZSUPPRESSION is inside the DCC configuration clob in ECAL_DCC_CONFIGURATION table.
FIRSTZSSAMPLE is stored in the same DB as the DCC weights.


Currently the values are:
L1ZSUPPRESSION = 20(EE) 9(EB)
FIRSTZSSAMPLE = 2

Pedro Parracho
```

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