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Samples simulation

After setting up the AM-FPGA simulation framework.

cmsDriver command to create n-tuples with gen-level, stubs, cluster information etc... is:

Without PU

```
cmsDriver.py SLHCL1TrackTriggerSimulations/Configuration/python/GluonGluonGun_PartonPt20to50GeV_t
--conditions auto:upgradePLS3 \
--eventcontent RAWSIM \
-s GEN,SIM,DIGI:pdigi_valid,L1TrackTrigger \
--datatier GEN-SIM-DIGI-RAW \
--beamspot HLLHC \
--customise SLHCUpgradeSimulations/Configuration/combinedCustoms.cust_2023TTI,SLHCL1TrackTriggerS
--geometry Extended2023TTI \
--magField 38T_PostLS1 \
--pileup NoPileUp \
--mc --no_exec --processName RAWSIM \
-n 1 --python_filename pset_GluonGluonGun_PartonPt20to50GeV_tt27_flat_pythia6_NoPU.py \
--fileout GluonGluonGun_PartonPt20to50GeV_tt27_flat_pythia6_NoPU.root
```

With PU

```
cmsDriver.py SLHCL1TrackTriggerSimulations/Configuration/python/GluonGluonGun_PartonPt20to50GeV_t
--conditions auto:upgradePLS3 \
--eventcontent RAWSIM \
-s GEN,SIM,DIGI:pdigi_valid,L1TrackTrigger \
--datatier GEN-SIM-DIGI-RAW \
--beamspot HLLHC \
--customise SLHCUpgradeSimulations/Configuration/combinedCustoms.cust_2023TTI,SLHCL1TrackTriggerS
--geometry Extended2023TTI \
--magField 38T_PostLS1 \
--pileup AVE_140_BX_25ns --pileup_input "dummy.root" \
--mc --no_exec --processName RAWSIM \
-n 1 --python_filename pset_GluonGluonGun_PartonPt20to50GeV_tt27_flat_pythia6_PU140.py \
--fileout GluonGluonGun_PartonPt20to50GeV_tt27_flat_pythia6_PU140.root
```

where in this example we have pointed a pythia6 fragment for gluon-gluon gun with one gluon pointing to the center of Trigger Tower 27 (the other goes in the opposite direction), and with pT in the range 20 to 50 GeV. An example of fragment for this is:

```
import FWCore.ParameterSet.Config as cms

from Configuration.Generator.PythiaUEZ2starSettings_cfi import *

generator = cms.EDProducer("Pythia6PartonPtGun",
    pythiaHepMCVerbosity = cms.untracked.bool(False),
    maxEventsToPrint = cms.untracked.int32(1),
    pythiaPylistVerbosity = cms.untracked.int32(1),
    PGunParameters = cms.PSet(
        PartonID = cms.int32(21),
        MinPhi = cms.double(1.122),
        MaxPhi = cms.double(1.346),
```

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```
MinPt = cms.double(20.0),
MaxPt = cms.double(50.0),
MinEta = cms.double(0.183),
MaxEta = cms.double(0.550)
),
PythiaParameters = cms.PSet(
  pythiaUESettingsBlock,
  parameterSets = cms.vstring(
    'pythiaUESettings'
  )
)
)

ProductionFilterSequence = cms.Sequence(generator)
```

Val i dat i on

We did studies checking the tracking particles produced and stub information:

[Control Plots](#)

and some latency parameters in:

[Latency Parameters](#)

-- Cesar Bernardes - 2016-09-22

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