

AD Trigger @ L1: L1Topo Inputs

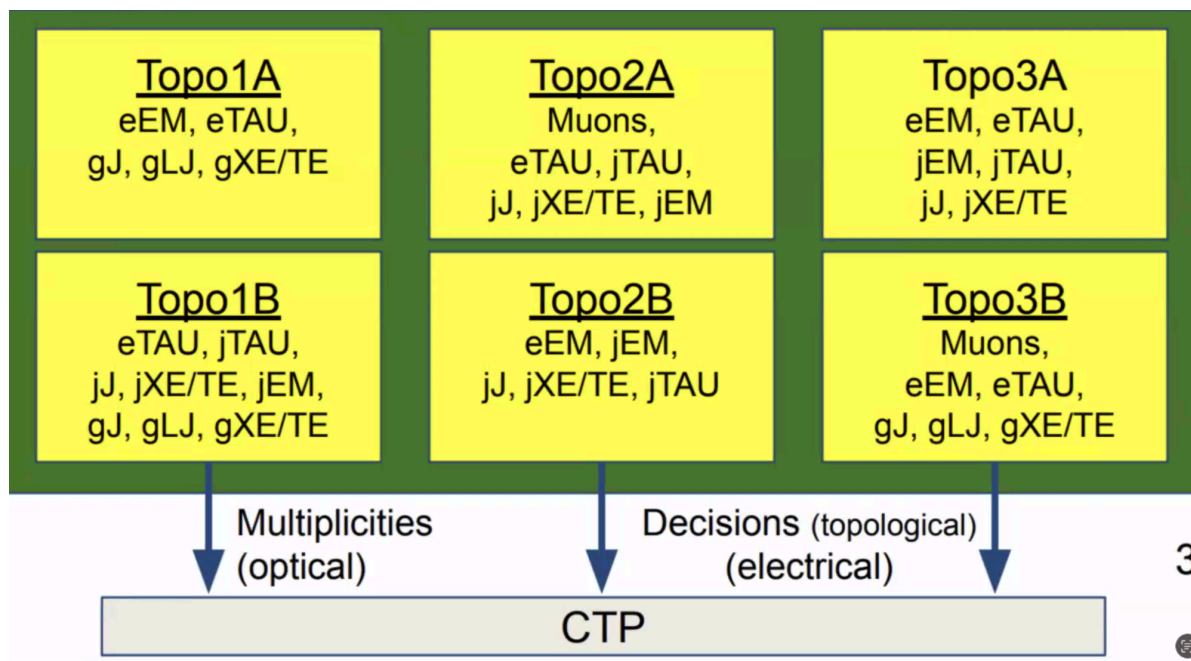
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L1Topo Board-Quantity Mapping

- eFEX:
 - eEM
 - eTAU
- jFEX:
 - jJ(et)
 - jXE (MET) / **TE (?)**
 - jTAU
 - jEM
- gFEX:
 - gJ(et)
 - **gLJ (?)**
 - gXE (MET) / TE(?)



In Athena

- Email from Ralf Gugel:
- <https://gitlab.cern.ch/atlas/athena/-/blob/main/Trigger/TrigT1/L1Topo/L1TopoSimulation/python/L1TopoSimulationConfig.py#L164>

```
164 def L1TopoSimulationStandaloneCfg(flags, outputEDM=[], doMuons = False):
165
166     acc = ComponentAccumulator()
167
168     efex_provider_attr = ['eFexEMRoI', 'eFexTauRoI']
169     jfex_provider_attr = ['jFexSRJetRoI', 'jFexLRJetRoI', 'jFexFwdELRoI', 'jFexTauRoI', 'jFexMETRoI', 'jFexSumETRoI']
170     gfex_provider_attr = ['gFexSRJetRoI', 'gFexLRJetRoI', 'gScalarEJwoj', 'gMETComponentsJwoj', 'gMHTComponentsJwoj', 'gMETComponentsNoiseCut', 'gME
```

- Muons: L1MuCTPtoL1TopoLocationFromMuonRoI

In AOD

- `data22_13p6TeV.00437548.physics_Main`
`.merge.AOD.f1302_m2142`

- Next step: make some plots from these containers?

- Using xAOD...

- Still need another function to convert these into
toro-internal representations

- Common granularity for ET, eta, phi

- Float representations converted to integer
quantities

- eFEX: function in eFEX EDM

- Muons: <https://gitlab.cern.ch/atlas/athena/-/blob/main/Trigger/TrigT1/L1Topo/L1TopoSimulation/src/MuonInputProvider.cxx#L69>

- jFEX: same as Muons

```
*.....*
root [19] CollectionTree->Print("L1*")
*****
*Tree :CollectionTree: CollectionTree
*Entries : 2310 : Total = 1348796872 bytes File Size = 407414325 *
* : : Tree compression factor = 3.31 *
*.....*
*Br 0 :L1_eEMRoIAux. : xAOD::eFexEMRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 428213 bytes File Size = 11364 *
*Baskets : 24 : Basket Size= 43520 bytes Compression= 37.61 *
*.....*
*Br 1 :L1_gMETComponentsJwojAux. : xAOD::gFexGlobalRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 359249 bytes File Size = 11468 *
*Baskets : 24 : Basket Size= 36352 bytes Compression= 31.25 *
*.....*
*Br 2 :L1_gMETComponentsNoiseCutAux. : xAOD::gFexGlobalRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 359361 bytes File Size = 11472 *
*Baskets : 24 : Basket Size= 36352 bytes Compression= 31.25 *
*.....*
*Br 3 :L1_gMETComponentsRmsAux. : xAOD::gFexGlobalRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 359221 bytes File Size = 11352 *
*Baskets : 24 : Basket Size= 36352 bytes Compression= 31.57 *
*.....*
*Br 4 :L1_gMETComponentsJwojAux. : xAOD::gFexGlobalRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 359249 bytes File Size = 11468 *
*Baskets : 24 : Basket Size= 36352 bytes Compression= 31.25 *
*.....*
*Br 5 :L1_gMETComponentsJwojAux. : xAOD::gFexGlobalRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 359249 bytes File Size = 11468 *
*Baskets : 24 : Basket Size= 36352 bytes Compression= 31.25 *
*.....*
*Br 6 :L1_gScalarEJwojAux. : xAOD::gFexGlobalRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 359081 bytes File Size = 11324 *
*Baskets : 24 : Basket Size= 36352 bytes Compression= 31.64 *
*.....*
*Br 7 :L1_gScalarENoiseCutAux. : xAOD::gFexGlobalRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 359193 bytes File Size = 11420 *
*Baskets : 24 : Basket Size= 36352 bytes Compression= 31.38 *
*.....*
*Br 8 :L1_gScalarERmsAux. : xAOD::gFexGlobalRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 359053 bytes File Size = 11300 *
*Baskets : 24 : Basket Size= 36352 bytes Compression= 31.70 *
*.....*
*Br 9 :L1_gFexLRJetRoIAux. : xAOD::gFexJetRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 335981 bytes File Size = 11232 *
*Baskets : 24 : Basket Size= 34304 bytes Compression= 29.84 *
*.....*
*Br 10 :L1_gFexRhoRoIAux. : xAOD::gFexJetRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 335925 bytes File Size = 11184 *
*Baskets : 24 : Basket Size= 34304 bytes Compression= 29.96 *
*.....*
*Br 11 :L1_gFexSRJetRoIAux. : xAOD::gFexJetRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 335981 bytes File Size = 11232 *
*Baskets : 24 : Basket Size= 34304 bytes Compression= 29.84 *
*.....*
*Br 12 :L1_cTauRoIAux. : xAOD::eFexTauRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 382041 bytes File Size = 10284 *
*Baskets : 24 : Basket Size= 38912 bytes Compression= 37.07 *
*.....*
*Br 13 :L1_eTauRoIAux. : xAOD::eFexTauRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 382041 bytes File Size = 10284 *
*Baskets : 24 : Basket Size= 38912 bytes Compression= 37.07 *
*.....*
*Br 14 :L1_jFexMETRoIAux. : xAOD::jFexMETRoIAuxContainer_v1 *
*Entries : 2310 : Total Size= 335925 bytes File Size = 11184 *
*Baskets : 24 : Basket Size= 34304 bytes Compression= 29.96 *
*.....*
```