



Contribution ID: 30

Type: **not specified**

CBC2: a microstrip readout ASIC with coincidence logic for trigger primitives at HL-LHC

Friday, 4 May 2012 14:30 (30 minutes)

We present the design of a new version of the CBC (CMS Binary Chip) ASIC for the readout of CMS Tracker Phase-two upgrade. CBC2, designed in 130nm CMOS, doubles the input channels to 254 and will be bump-bonded to the substrate. The ASIC is designed to instrument double layer modules in the outer tracker, consisting of two overlaid silicon sensors with aligned microstrips, and incorporates the logic to identify L1 trigger primitives in the form of “stubs”: high transverse-momentum candidates which are isolated from the low momentum background by selecting correlated hits between two closely separated microstrip sensors. The functionality of the coincidence logic, which includes rejection of wide clusters and offset correction to account for the position of the module in the R- Φ plane, is described in detail.

Primary author: BRAGA, Davide (STFC - Science & Technology Facilities Council (GB))

Co-authors: RAYMOND, David Mark (Imperial College Sci., Tech. & Med. (GB)); HALL, Geoff (Imperial College Sci., Tech. & Med. (GB)); Mr JONES, Lawrence (STFC Rutherford Appleton Laboratory); PESARESI, Mark (Imperial College); PRYDDERCH, Mark (STFC Rutherford Appleton Lab); Mr MURRAY, Peter (STFC)

Presenter: BRAGA, Davide (STFC - Science & Technology Facilities Council (GB))

Session Classification: On-module electronic circuits (3D and conventional), intra-module and off-detector communication

Track Classification: On-module electronic circuits (3D and conventional), intra-module and off-detector communication