

CBC2: a CMS microstrip readout ASIC with logic for track-trigger modules at HL-LHC

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The CBC2 is the latest version of the CMS Binary Chip ASIC for the readout of the upgraded CMS Tracker at the High Luminosity LHC. It is designed in 130nm CMOS with 254 input channels and will be bump-bonded to a substrate to which sensors will be wire bonded. The CBC2 is designed to instrument double layer modules, consisting of two overlaid silicon microstrip sensors with aligned microstrips, in the outer tracker. It incorporates logic to identify L1 trigger primitives in the form of "stubs": high transverse-momentum candidates which are identified within the low momentum background by selecting correlated hits between two closely separated microstrip sensors. The CBC2 is working well in laboratory tests and the first modules using it have been assembled. The performance of the chip and module characteristics will be reported and the module construction described.

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