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## The Silicon Tracking System of the CBM experiment towards starting system assembly

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The Silicon Tracking System (STS) is the main tracking detector of the CBM experiment. It is designed to reconstruct trajectories of up to 700 charged particles per event produced in up to 10 MHz heavy-ion collision with high efficiency, to achieve momentum resolution better than 2% inside a 1 Tm magnetic field, and to be capable of identifying complex decay topologies. The main STS functional building block is the detector module. It consists of a double-sided silicon sensor connected through a stack of low-mass microcables to the custom-developed readout ASICs on two front-end electronics boards. 876 modules are arranged in 8 tracking stations, where 1.8 million channels are read out with self-triggering electronics, matching the experiment's data streaming and online event analysis concept.

Currently, the construction of the STS detector is progressing on several fronts. Firstly, the mechanical design is being finalized and tested, while the cooling concept is being assessed through a thermal demonstrator. In addition, modules assembled during pre-series are undergoing characterization, and the final production phase has begun, with multiple quality control steps in place to ensure reliable module performance and high production yield. The implementation of these quality control steps has involved the development of necessary hardware and software. This work will provide an overview of the systematic testing of the STS modules and components towards series production, as well as highlighting the most significant achievements and challenges in detector mechanical assembly and integration.

### Category

Experiment

### Collaboration (if applicable)

CBM Collaboration

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