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# Automatic module assembly and loading system development for ATLAS HGTD

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The ATLAS HGTD detector has 8032 modules, which consists of a module flex and two bare modules(LGAD sensor bump-bonded to an ASIC).About 33% of the modules will be assembled at IHEP. A high-precision robotic pick-and-place system is developed, with camera locating and robotic arm for picking and placing. This system is also used for detector unit loading, which is to place the modules into array and be glued to a PEEK support unit. Now the assembly rate reaches assemble >10 modules/day, 20modules/day in maximum. The assembled modules and detector units are tested locally to make sure they are well working. Thermal simulation and other simulation are performed to study the results from thermal and mechanical performance.

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