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Assembly, Testing, and Performance of the CMS Forward Pixel Detector Modules

The CMS detector is a multipurpose collider detector that is being constructed at the Large Hadron Collider and is scheduled to begin taking data in 2007. At the heart of the all-silicon tracking system is a silicon pixel detector divided into a cylindrical barrel and forward disks. The forward pixel system is currently being assembled and is scheduled for insertion into CMS in 2008. There are a large number of subcomponents present in the system, some assembled by outside vendors and others assembled at collaborating institutions. To ensure the quality of the final detector, a testing program has been developed to ensure the use of known good parts at each phase of assembly. This report will focus on the testing performed on individual detector modules. This involves a thorough test of the functionality, noise, gain, and other characteristics of all 18 million pixels in the full system. Results are presented on the first 20% of modules that have been assembled and tested.

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