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The Description of the Atlas Detector

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The ATLAS Detector consists of several major subsystems: an inner detector composed of pixels, microstrip detectors and a transition radiation tracker; electromagnetic and hadronic calorimetry, and a muon spectrometer. Over the last year, these systems have been described in terms of a set of geometrical primitives known as GeoModel. Software components for detector description interpret structured data from a relational database and build from that a complete description of the detector. This description is now used in the Geant-4 based simulation program and also for reconstruction. Detector-specific services that are not handled in a generic way (e.g strip pitches and calorimetric tower boundaries) are added as an additional layer which is synched to the raw geometry. Detector misalignments may also be fed through the model to both simulation and reconstruction. Visualization of the detector geometry is accomplished through Open Inventor and its HEPVis extensions. The ATLAS geometry system in the last year has undergone extensive visual debugging, and experience with the new system has been gained not only through the data challenge but also through the combined test beam. This talk gives an overview of the ATLAS detector description and discusses operational experience with the system in the data challenges and combined test beam.

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