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## Software for CMS Reconstruction

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At the end of 2007 the first colliding beams from LHC are expected. The CMS Computing model enforces the use of the same software (with different performance settings) for offline and online(HLT) operations; this is particularly true for the reconstruction software: the different settings must allow a processing time per event (typically, numbers for  $2 \times 10^{33}$  luminosity are given) of 50 ms at HLT, while 25 sec are allowed for the offline reconstruction. During 2006 CSA06 data challenge the focus has been put on the offline reprocessing. The reconstruction software has substantially improved from the end-of-2005 version, which was able to process only local reconstruction, to a full fledged reconstruction program, with high level objects ready for analysis tasks (electrons, jets, muons, b/tau tagged jets). The same software is also ready to process a non-ideal detector, and takes into account hardware inefficiencies and misalignments. This second mode of operation, which is important for the readiness of data taking, has been tested in CMS slice tests and commissioning tasks, and has shown that the algorithms used for MonteCarlo processing are well suited to real-world tasks. During 2007, a second data challenge will explore online/offline reconstruction, and will be used as the base for the ready-for-beam demonstration.

### Submitted on behalf of Collaboration (ex, BaBar, ATLAS)

CMS

### Summary

The CMS Reconstruction software is described, pointing out current performance and future developments towards data taking.

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