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PRINCIPAL LHCC DELIBERATIONS

24TH MEETING OF THE CMS RESOURCES REVIEW BOARD

23 APRIL 2007

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GENERAL

This document summarises the principal LHCC deliberations concerning CMS at the Committee's sessions in November 2006 and in February and March 2007.

Progress since the previous meeting of the CMS Resources Review Board in October 2006 has been excellent. CMS has developed a contingency plan to identify critical path tasks which could be curtailed and postponed to the 2007-2008 shutdown period. The schedule to complete the initial CMS detector for the LHC run later in 2007 remains very tight but credible.

CONCERNS FROM THE PREVIOUS CMS RESOURCES REVIEW BOARD

SUB-SYSTEM	CONCERN	STATUS
Silicon Strip Tracker (SST)	The delivery of the SST to Point 5 is on the critical path for completion of CMS.	Excellent progress was reported on the SST. The Tracker has been completely tested and integrated into the Tracker Support Tube. The overall quality is excellent.
ECAL	Crystal production for the ECAL End-cap is on the critical path.	All crystals for the Barrel ECAL (EB) have been received and crystal production for the End-Cap ECAL (EE) has started at both producers. Production of crystals has improved but still requires further progress to ensure the timely completion of the ECAL. The production of crystals defines the EE schedule, resulting in a very tight time-line for the installation of the EE in CMS.
Installation of Cables & Pipes	The CMS critical path goes through the installation of cables and pipes of the chambers on the central barrel yoke YB0.	Reviews for the YB0 services have been held and work has started. The piping design has been greatly simplified and the resource-loaded schedule indicates that sufficient manpower is available to

		complete the services on time. However, it is imperative for CMS to continue monitoring all supply-line schedules, such as those for the Muon System cables.

DETECTOR SUB-SYSTEMS

SILICON STRIP TRACKER (SST)

The Silicon Strip Tracker (SST) has been completely tested and integrated into the Tracker Support Tube. Running with cosmic-rays at the Tracker Integration Facility (TIF) has been highly successful and about 400,000 cosmic-ray triggers are being reconstructed for analysis. The simultaneous alignment of all pixel and strip modules has started with *Millipede II*.

ELECTROMAGNETIC CALORIMETER (ECAL)

Good progress was reported on the Electromagnetic Calorimeter (ECAL). All crystals for the Barrel ECAL (EB) have been received and all `bare' Supermodules will be completed by mid-April 2007. Crystal production for the End-Cap ECAL (EE) has started at both producers. Agreement with BCTP for the final crystals for the EE has been reached and delivery of the crystals is expected to be finished by the end of February 2008. Integration of the ECAL is also advancing well. Production of the new motherboards is well-underway and the already-produced units are of excellent quality. Fourteen Supermodules with the new motherboards are ready for integration. Construction of the first EE Dee from the series production has started.

HIGH LEVEL TRIGGER

Activity in the High Level Trigger (HLT) has increased markedly. The group has been strengthened. New algorithms and complete trigger paths that can run in the actual HLT conditions have been developed. The LHCC considers that in order to make further progress, more attention is needed in the organization of tasks taking into account a more global strategy, especially in composing a good trigger menu, and developing a list of objectives and metrics to set priorities.

COMPUTING

Good progress was reported on the Computing, Software and Analysis (CSA06) Challenge. Prompt reconstruction at the new Tier-0 facility went smoothly, transfer to Tier-1 centres exceeded targets and the transfer quality to Tier-2 centres was variable. For many analyses, the Challenge provided an important test for the validation of the analysis code under the CMSSW software framework.

INSTALLATION

Lowering of the CMS detector elements to the UXC55 experimental cavern has made outstanding progress. The first phase of this lowering campaign has been completed on schedule, and includes

the YB0 central barrel yoke with the superconducting coil. Reviews for the YB0 services have been held and work has started. The piping design has been greatly simplified and the resource-loaded schedule indicates that sufficient manpower is available to complete the services on time. However, it is imperative for CMS to continue monitoring all supply-line schedules, such as those for the Muon System cables.