COMPASS Detector Control System new features

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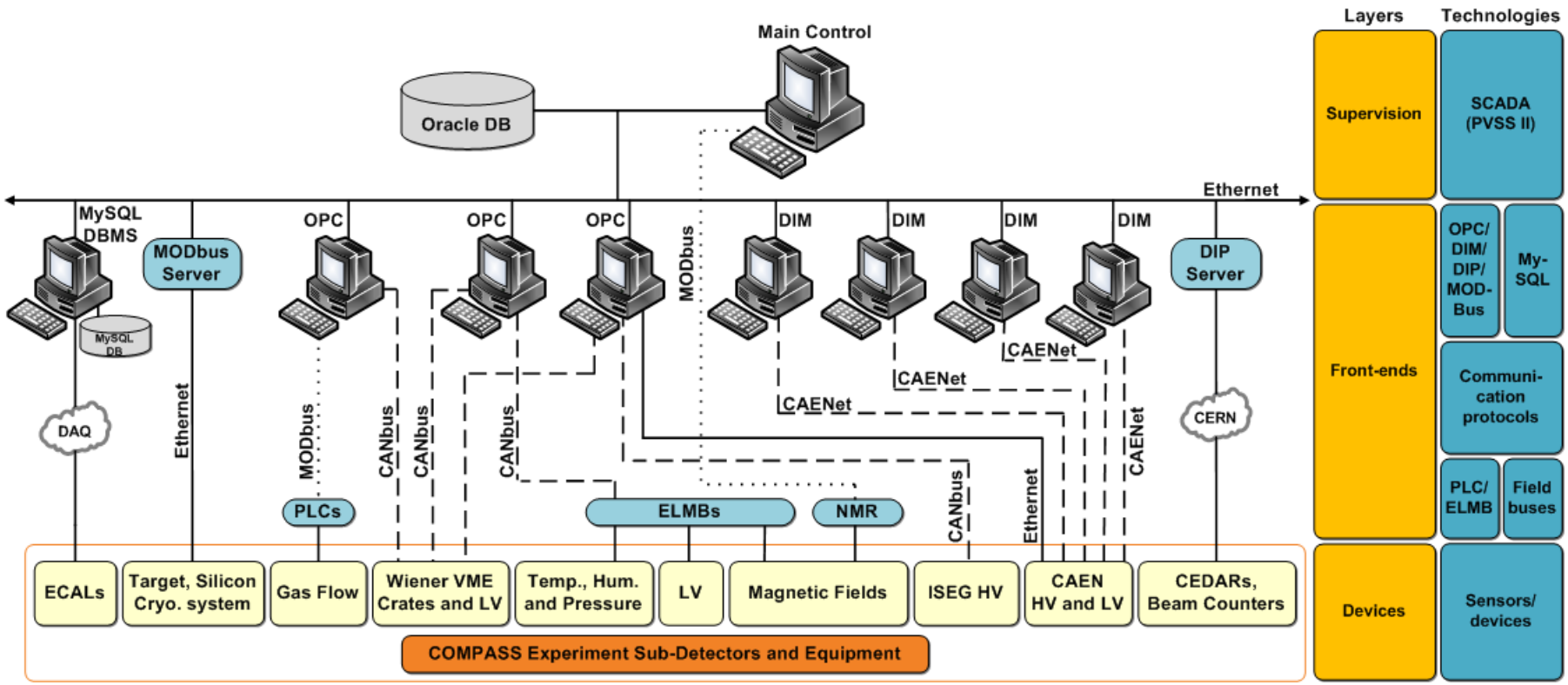
Introduction

- The Detector Control System (DCS) of the COMPASS experiment at CERN is an exclusive responsibility of its LIP Lisbon group since 2003.
- The DCS monitors and controls equipment from all the COMPASS experiment and its environment.
- It involves 2-3 dedicated people.
- In the 2005 the whole system was redesigned, changing from a "hardware oriented" structure to a "detector oriented" one.
- In the 2011 Run, the DCS was important to allow the reduction of one shift crew element.

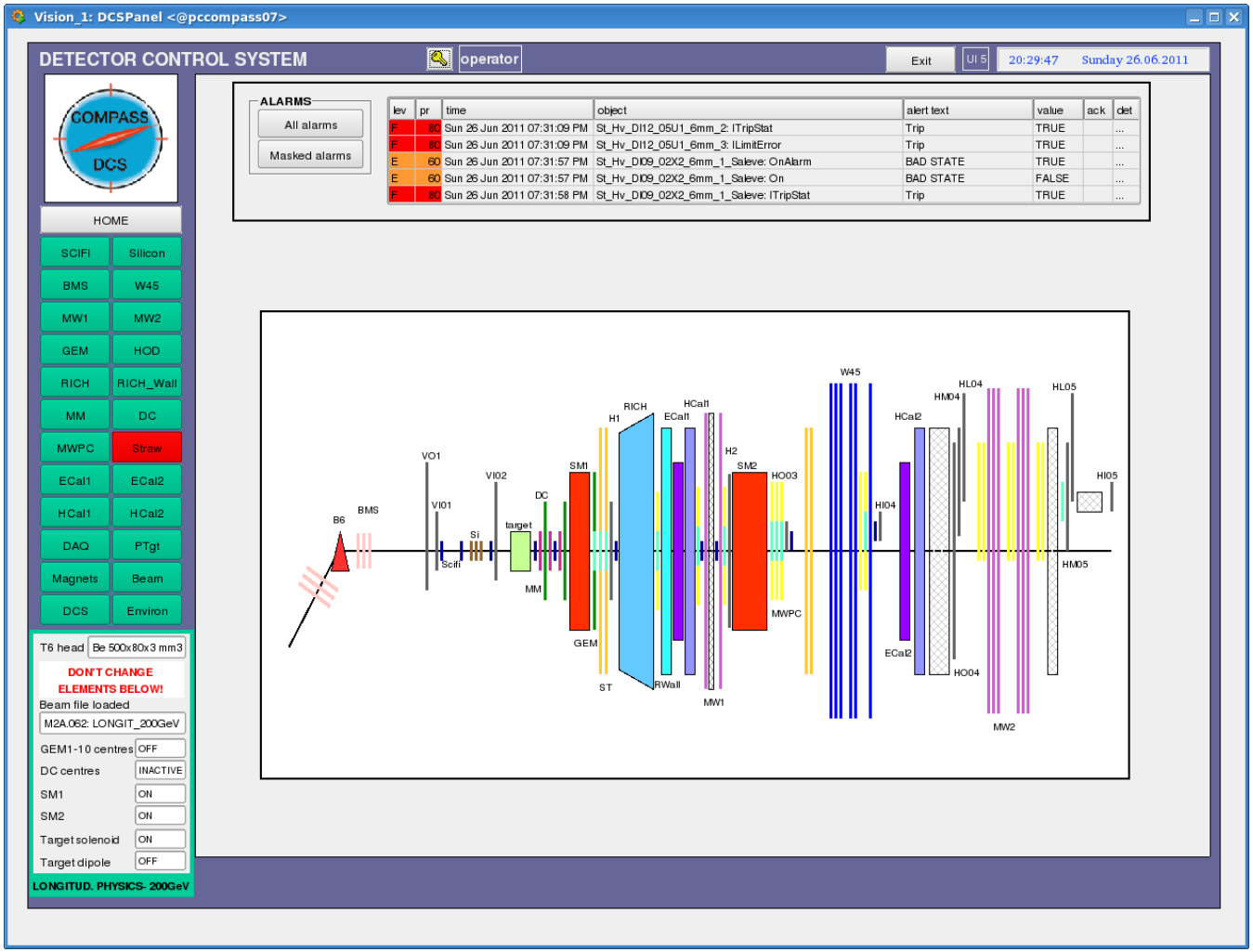
Overview



- $\sim$ 20 000 datapoints
- Reading cycles from 1.5 s to 2 min
- $\sim$ 17 000 parameters with alert handling
- $\sim$ 19 000 parameter values archived, with regular cycles from 40 s to 30 min

- 10 PCs for supervision and front-ends, in a PVSS distributed and scattered system
- Data stored in a centralized Oracle database and streamed to a replica database
- The most relevant data for physics analysis is copied to the experiment's mySQL Conditions DB

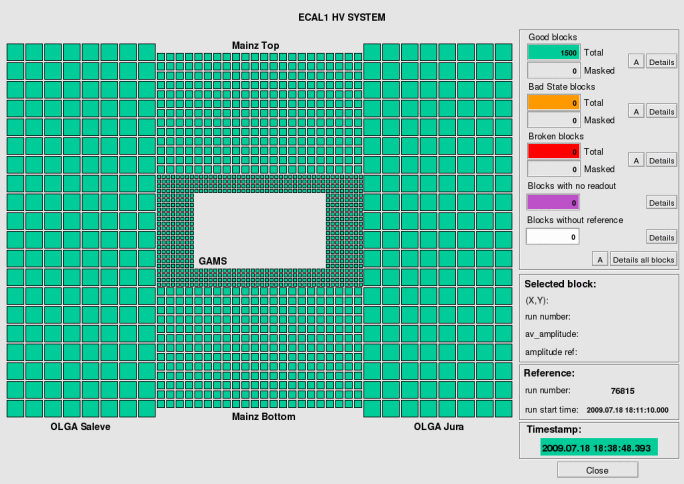
The COMPASS DCS User Interface



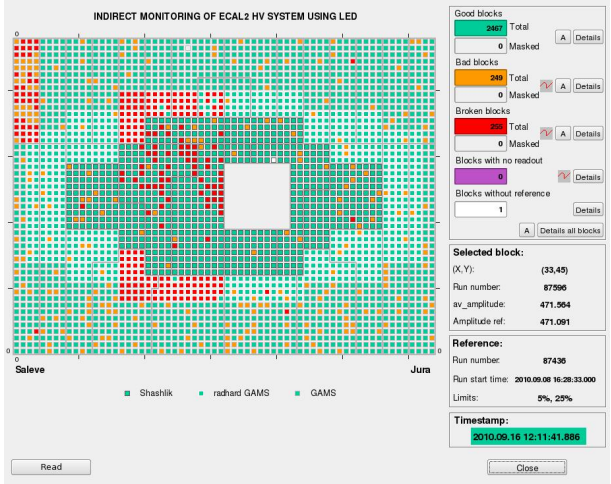
New features in 2010-2012

	HV/LV power supplies	DAQ VME & disks	Calorimeters monitoring	Polarized target monitor.	Beam line & trigger monitor.	General experimental status
DIM	×	×				
OPC	×					
ELMB			×			
DIP				×	×	
MODbus				×		
S7				×		
mySQL/Oracle			×	×	×	
CONTROL script(s)	×		×	×	×	×

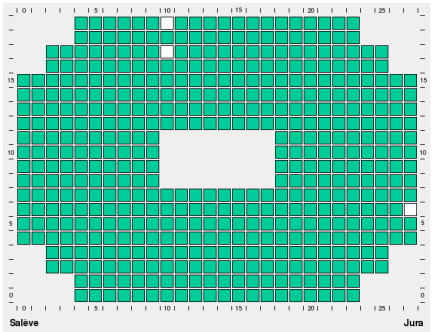
Calorimeters laser/LED monitoring



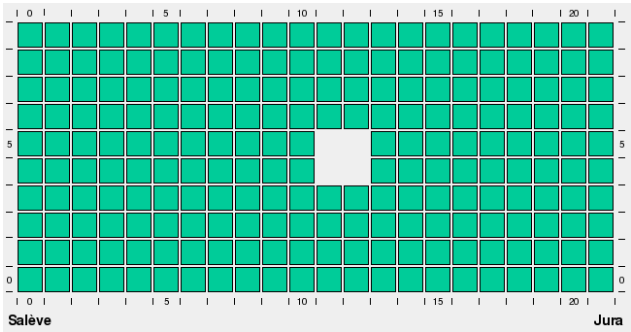
ECAL1: 1500 channels



ECAL2: 2972/3068 channels

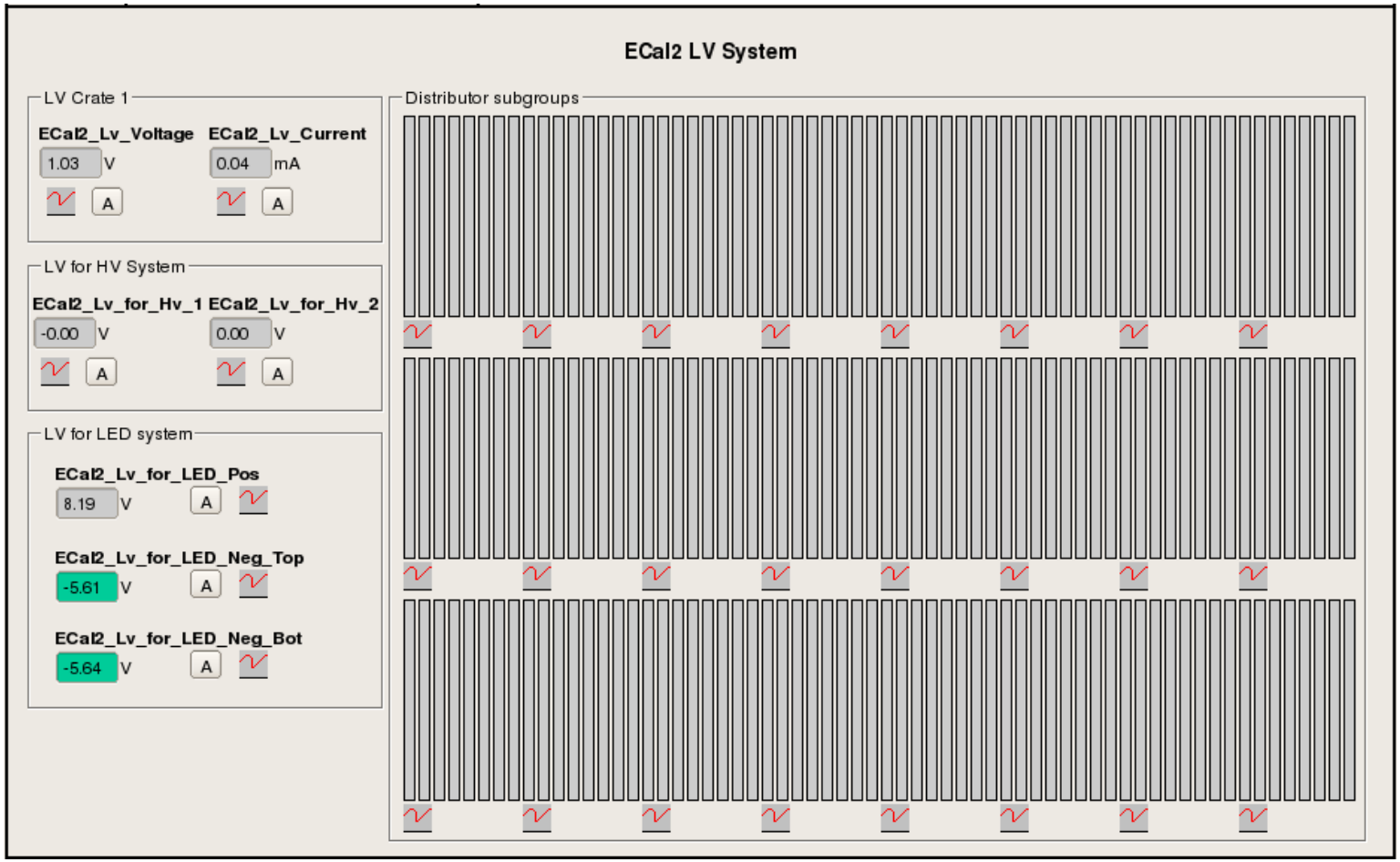


HCAL1: 480 channels



HCAL2: 216 channels

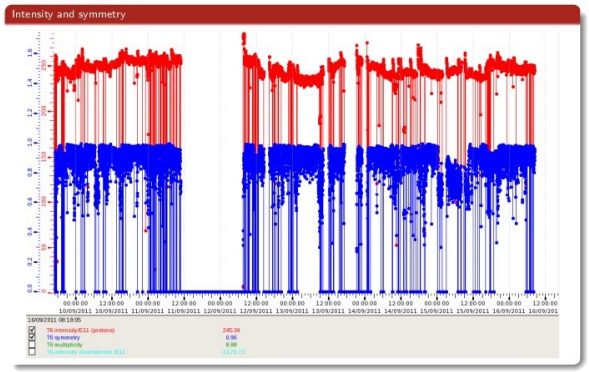
ECAL2 LV monitoring using ELMBs



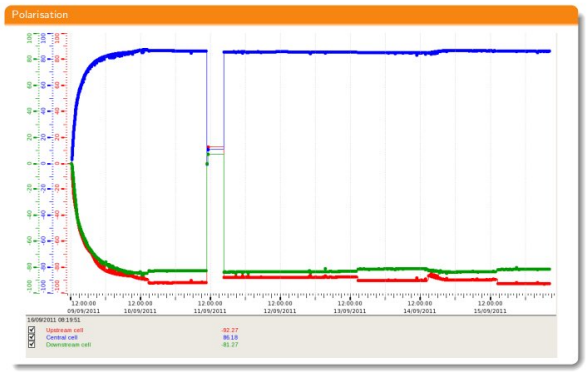
192 distributor subgroups

A week of data taking as seen by the DCS

Beam

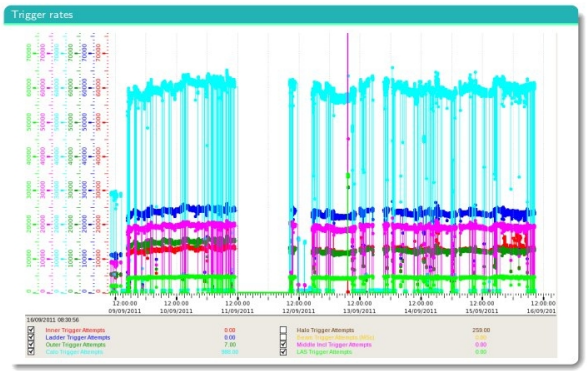


Target



Spectrometer

Data taking



Summary and outlook

- The COMPASS experiment has a flexible setup to explore different Physics programs, which demands a flexible Detector Control System.
- When possible, standard, up-to-date solutions of monitoring and control are preferred; otherwise, customized solutions have been developed for the specific needs of the experiment.
- The LIP-Lisbon group will continue to ensure the development and maintenance of the DCS of COMPASS-II.