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The BaBar Online Detector Control System Upgrade

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The BaBar slow control system uses EPICS (Experimental Physics and Industrial Control System) running on 17 VME based single board computers (SBCs). EPICS supports the real-time operating systems vxWorks and RTEMS. During the 2004/05 shutdown BaBar started to install a new detector component, the Limited Streamer Tubes (LST), adding over 20000 high voltage channels and about 350 monitoring tasks to the control system. During 2005 data taking 5 out of 17 SBCs were replaced by PowerPC SBCs running RTEMS. Due to a lack of debugging and monitoring tools and memory and task management limitations on RTEMS, the decision was made to run Linux instead. Only a few EPICS drivers needed to be ported. Running EPICS on Linux provides a very stable environment and better debugging and monitoring tools than vxWorks or RTEMS. Many existing bugs in BaBar detector control applications could be discovered and fixed.

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

BaBar

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