

Porting the LHCb Stack from x86 (Intel) to aarch64 (ARM)

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LHCb is undergoing major changes in its data selection and processing chain for the upcoming LHC Run 3 starting in 2021. With this in view several initiatives have been launched to optimise the software stack. This contribution discusses porting the LHCb Stack from x86 architecture to aarch64 architecture with the goal to evaluate the performance and the cost of the computing infrastructure for e.g. the trigger selection process. The whole LHCb software stack contains around 6 million lines of code which need to be ported. In addition this requires to find working versions of external libraries which LHCb depends on and are provided by LCG. Across all software packages the biggest challenge is the growing use of vectorisation - as many vectorisation libraries are specialised on x86 architecture and do not have aarch64 support. In spite of these challenges we have successfully ported the LHCb reconstruction code to aarch64. This contribution discusses the status and plans for the porting of the software aswell as the LHCb approach for tackling code vectorisation in a platform independent way.

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