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Performance portability for the CMS Reconstruction with Alpaka

Heterogeneous Computing will play a fundamental role in the CMS reconstruction to face the challenges that will be posed by the HL-LHC phase. Several computing architectures and vendors are currently available to build an Heterogeneous Computing Farm for the CMS experiment. However, specialized implementations for each of these architectures is not sustainable in terms of development, maintenance and validation. Performance Portability Libraries, as Alpaka, allow performance portability across different accelerators with a single code basis. To test the feasibility of Alpaka for the CMS reconstruction, the library has been tested on a standalone version of the Patatrack Pixel Track and Vertex Reconstruction. This test demonstrates the possibility of writing a single source code that can be executed on different devices with different parallelization strategies, achieving similar performance with respect to the native implementations.

Significance

References

Speaker time zone

Compatible with Europe

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