CORSIKA 8 Parallelism & Performance Meeting

News, recap and comments

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Presented at 2nd CORSIKA 8 Parallelism & Performance Meeting - KIT, Karlshuhe February 18, 2021



Previous meetings relevant for P&P:

- 1st CORSIKA 8 Parallelism & Performance Meeting 21/01/2021. First CORSIKA 7/8 performance comparison study. Update today.
- CORSIKA 8 Meeting 14/01/2020. About new multithread friendly facility for random number generation (slides missing).
- CORSIKA 8 Meeting 17/12/2020.GPU based photon propagation for CORSIKA 8.
- CORSIKA 8 Meeting 03/12/2020 . Discussions about parallelism related concepts and overview of vectorization libraries and technologies.
- CORSIKA 8 Meeting 22/10/2020. Cherenkov module optimization and speed-up.

I will maintain this list somewhere in the wiki page of the project. Please let me know if I am missing some content.

- CUDA 11.2.1 Update 1 released 02/2020.
- C++20 Published (ISO/IEC 14882:2020) December/2020. Follow compiler support here.
- Khronos Releases SYCL 2020 Specification.
- OpenCL is a well known framework for writing programs which run on heterogeneous devices, such as multicore CPUs, GPUs, DSPs, FPGAs.
- SYCL is a C++ abstraction layer over OpenCL which aims to make OpenCL programming easier. Indeed, SYCL allows developpers to benefit from C++ features and brings "single source" programming style, whereas OpenCL is mainly based on C language (a C++ layer is also available) and requires "kernels" (code which is going to be executed on the device) to be written in another file.