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Lattice QCD code Bridge++ on multi-thread and many core accelerators

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We are developing a new code set "Bridge++" for lattice simulations. It is aimed to be an extensible, readable, and portable workbench, while it keeps a high performance. Bridge++ covers conventional lattice actions and numerical algorithms. A recent massively parallel cluster system requires a hybrid parallel programing, such as MPI and OpenMP. We also need elaborated programing technique to make use of arithmetic accelerators like GPGPUs and intel Xeon phi. To control accelerator devices, we adopt OpenCL, which provides APIs applicable to wide range of accelerators. We report present status of multi-threading by OpenMP and implementation for accelerator devices.

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