Optimization of the Gridding program on heterogeneous computing platform

1 Files

- `tConvolve.tar`: the Gridding program source code
- `verify.tar`: the program for performing result verification

To compile the program, go inside the `tConvolve` directory and type "make".

2 Workloads

Each workload has two output files: `grid.dat`, `log.dat`

- `grid.dat`: computing results, should be judged by verification program
- `log.dat`: performance report

3 Correctness verification

- step1. copy "`grid.dat`" and "`grid_std.dat`" into the same directory of verifying program
- step2. run `./verify grid.dat grid_std.dat`

Relative error of L1 norm should be smaller than 1e-12.

4 Rules of optimization

- The optimization methods must not violate the basic algorithms that are used in the original code. If you change the algorithm, you must prove that your modification is equivalent to the original one.
- Tthe function named "gridKernel" is the only function should be optimized. All modifications of the program must be inside the time measuring region.
- Modification of other functions of the program are prohibited.
- Modifications of environment variables of Makefiles are allowed, but it is your responsibility to ensure the correctness.

5 Credits