

Practical Exercise #6

Vectorization: flops for free

Exercises

1. Experiment with the automatic vectorization loops from the multi-material source code in Section 4.3 (<https://github.com/LANL/MultiMatTest.git>). Add the vectorization and loop reporting flags and see what your compiler tells you.
2. Add OpenMP SIMD pragmas to the loop you selected in the first exercise to help the compiler vectorize loops.
3. In one of the examples with intrinsic vector functions, change the vector length from four double-precision values to an eight-width vector. Review the source code in this chapter for working code examples of eight-width implementations.
4. If you are using an older processor, how well does your program from Exercise 3 run? What is the impact of this choice on performance?