

Calculating the Sum of a Vector

A vectors sum can be calculated in various ways:

1. Single-threaded summation
 2. Multi-threaded summation with a shared variable
 3. Thread-local summation
-
- Analyze the different strategies for calculating the sum of a vector. For your analysis, perform the following steps:
 1. Compile each program with maximum optimization
 2. Execute each program locally
 3. Note the execution time of each program

Calculating the Sum of a Vector

1. Single-threaded summation

- `calculateWithLoop.cpp`
- `calculateWithStd.cpp`
- `calculateWithLock.cpp`
- `calculateWithAtomic.cpp`

Calculating the Sum of a Vector

2. Multi-threaded summation with a shared variable

- `synchronizationWithLock.cpp`
- `synchronizationWithAtomic.cpp`
- `synchronizationWithFetchAdd.cpp`
- `synchronizationWithFetchAddRelaxed.cpp`

Calculating the Sum of a Vector

3. Thread-local summation

- `localVariable.cpp`
- `localVariableAtomic.cpp`
- `localVariableAtomicRelaxed.cpp`
- `threadLocalSummation.cpp`
- `taskSummation.cpp`