

6th Exercise in HPC

Exercise 1

Modify your program to compute π but now using

`MPI_Gather()`

instead of

`MPI_Reduce()`.

Use the MPI timing function

`time=MPI_Wtime();`

to time your program and to compute scalability. Which version is (potentially) more efficient? Why?

Exercise 2

Implement a vector data type using MPI and distribute the rows linearly among the processors.

The data type should provide

- a scalar product $x^T y$,
- the multiplication by a scalar αx ,
- and the computation of a norm $\|x\|_2$.

Also provide a fused operation $z = \alpha x + \beta y$. What is the advantage of this operation?