* Design and investigation of vector-based reduction operation for MPI reduction.
* Implementation using Intel AVXs and Arm SVE to demonstrate the efficiency of our vectorized reduction operation.
* Experiments with MPI benchmarks, performance tool, HPC and deep learning application.
* Experiments with different architectures (x86 and aarch64) and processors including Intel Xeon Gold, AMD Zen 2, and Arm A64FX.