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Process mapping on any topologies with TopoMatch

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Process mapping (or process placement) is a useful algorithmic technique to optimize the way applications are launched and executed onto a parallel machine. By taking into account the topology of the machine and the affinity between the processes, process mapping helps reducing the communication time of the whole parallel application. Here, we present TopoMatch, a generic and versatile library and algorithm to address the process placement problem. We describe its features and characteristics, and we report different use-cases that benefit from this tool. We also study the impact of different factors: sparsity of the input affinity matrix, trade-off between the speed and the quality of the mapping procedure as well as the impact of the uncertainty (noise) onto the input.

JLESC topic

Topology-aware execution

Primary author: JEANNOT, Emmanuel (Inria)

Presenter: JEANNOT, Emmanuel (Inria)

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