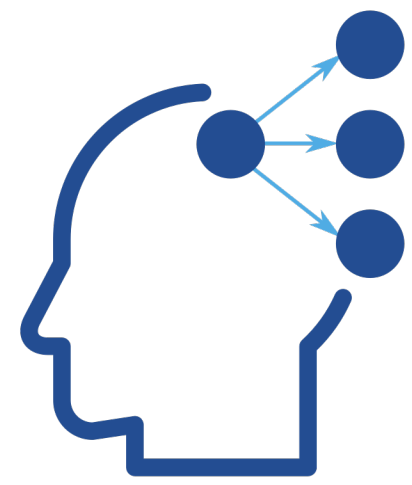


Bringing Parallel Patterns out of the Corner: the P³ARSEC Benchmark Suite

Daniele De Sensi, Tiziano De Matteis, Massimo Torquati,
Gabriele Mencagli, Marco Danelutto
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Parallel Patterns:
high-level abstractions
solving recurrent problems



Prove that few parallel patterns
can model
many real applications

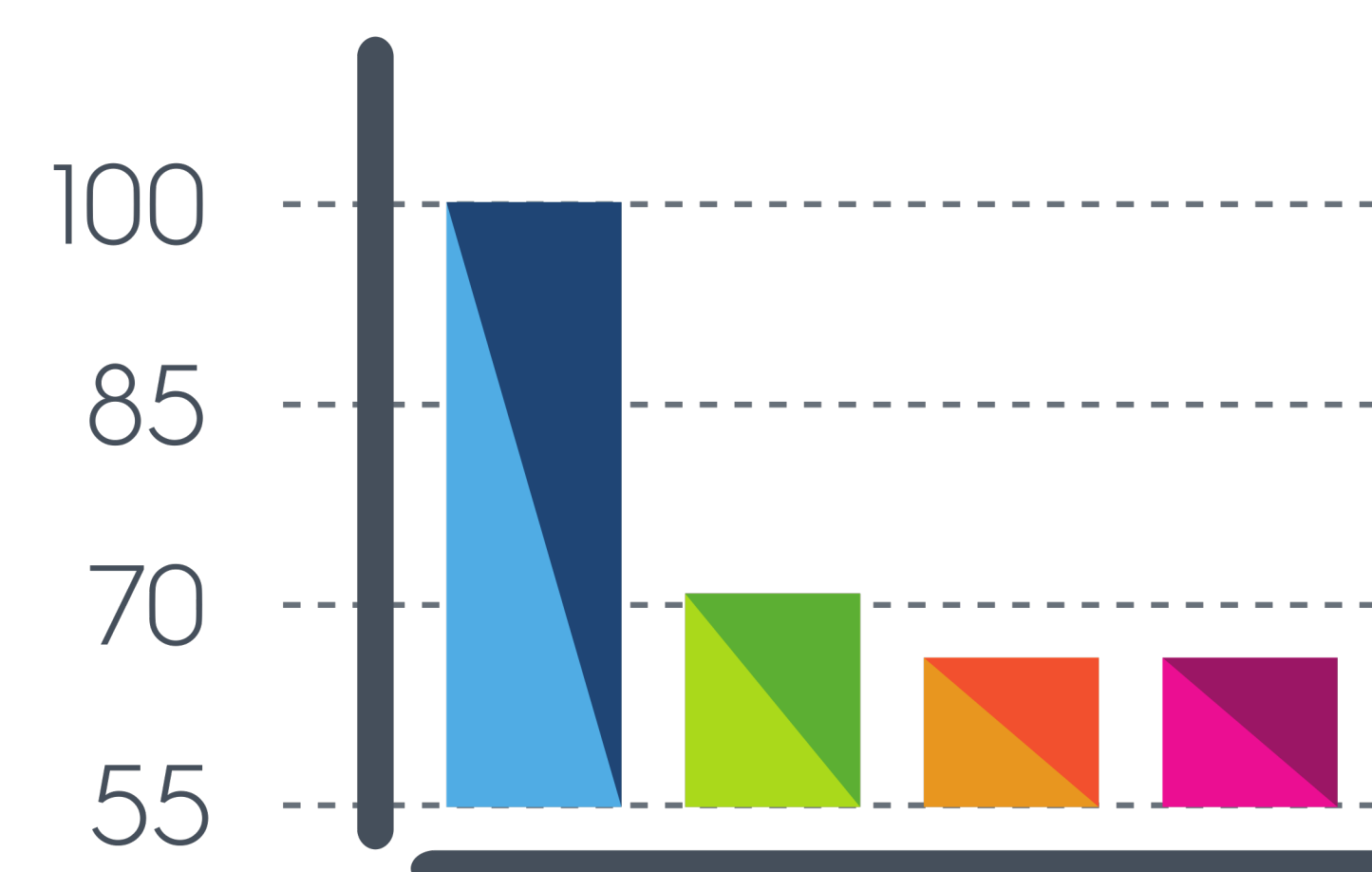


Implementation with
FastFlow and **SkePU2**
publicly available

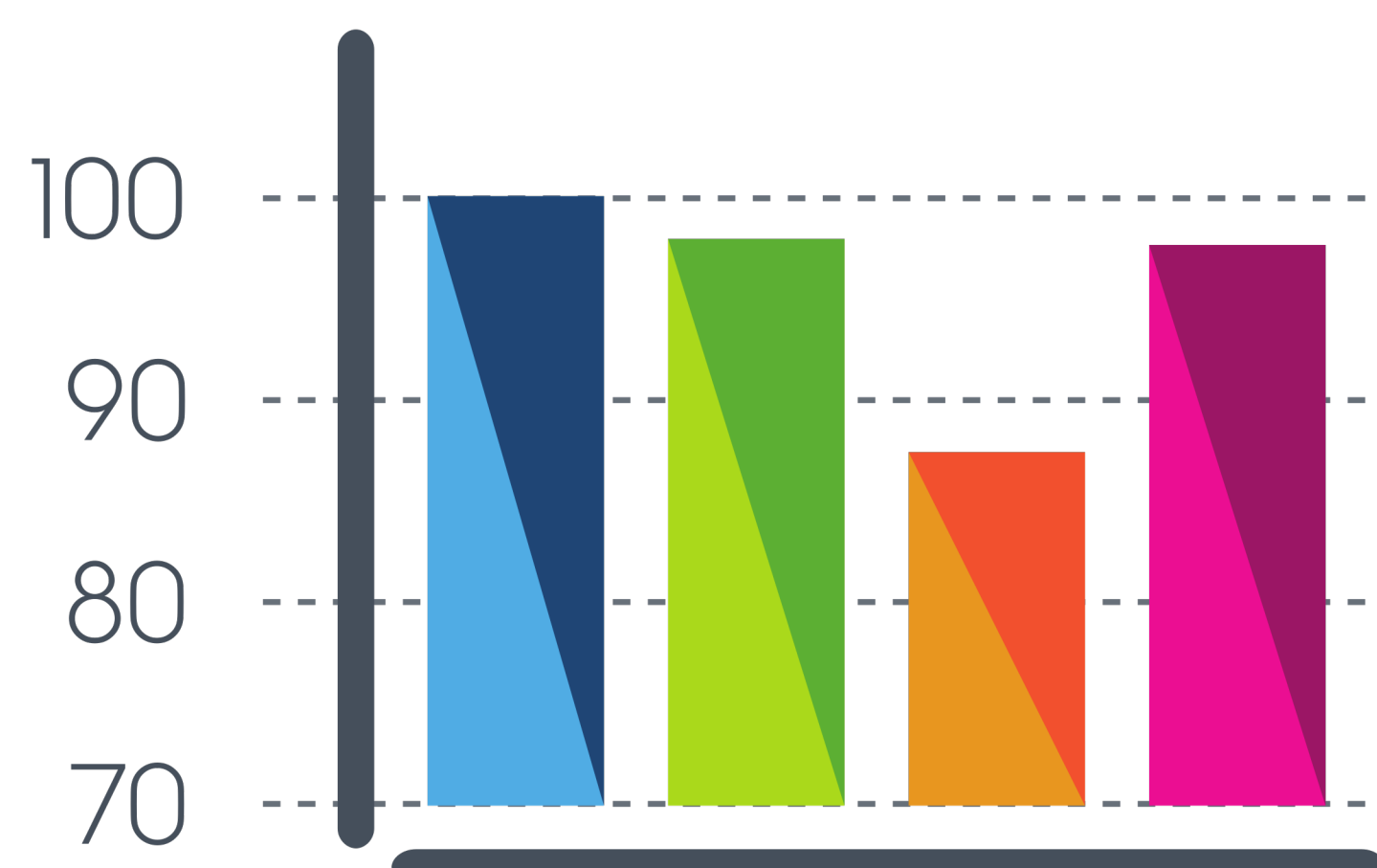
Comparison between:  Pthreads  OmpSs  FastFlow  SkePU2



Lower **programming effort**
thanks to high-level abstraction (up to
-87% LOC with respect to Pthreads)



Lines of Code
(Lower = Better)



Execution Time
(Lower = Better)

Improved **performance**
thanks to a simpler design
(up to **+42%** faster than Pthreads)



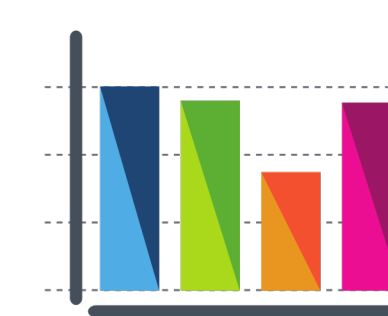
Easily evaluate
**different alternative
parallel structures**

Ferret Speedup w.r.t. Sequential

Alt. 1	Alt. 2	Alt. 3	Alt. 4
51.13	52.9	55.69	92.6



D. De Sensi, T. De Matteis, M. Torquati, G. Mencagli and M. Danelutto,
**"Bringing Parallel Patterns out of the corner:
the P³ARSEC Benchmark Suite"**
In *ACM Transactions on Architecture and Code Optimization*



Detailed results on: Intel Xeon Server,
Intel Xeon Phi KNL, IBM Power8

Additional comparison with TBB and
OpenMP

