
Modeling Contention and Mapping Effects in Multi-core Clusters

Modeling and formal analysis of parallel algorithms contribute to optimize their performance. Modern multi-core are complex machines composed of heterogeneous shared communication channels. Parallel Performance Models estimate the cost and capture the behavior of parallel algorithms through a set of parameters, providing valuable information about the behavior of the algorithm in these platforms. LogGP is a representative model using network related parameters to predict the cost of parallel algorithms as a sequence of point-to-point transmissions. Although extensions have been proposed for covering issues derived from modern platforms complexities as contention and channels hierarchy, such specific extensions are not enough to meaningfully and accurately model more than simple algorithms. τ -Lop is an alternative model that takes as a building block for modeling parallel algorithms the concept of concurrent transfers, that helps to capture algorithms behavior and allows to represent and accurately predict their cost in multi-core clusters. This paper shows the analysis capabilities of τ -Lop through two cases of study involving elaborated MPI collective operations.

Fuente de la publicación:

- Juan-Antonio Rico-Gallego, Juan-Carlos Díaz-Martín, Alexey L. Lastovetsky
[Modeling Contention and Mapping Effects in Multi-core Clusters](#) [1]
Euro-Par 2015: Parallel Processing Workshops, pp. 197-208. ISBN 978-3-319-27308-2, DOI= 10.1007 / 978-3-319-27308-2_17.

Proyectos relacionado:

- [Evaluación de AzequiaMPI](#) [2]

Noticias relacionadas:

- [Investigadores de la UEx publican en revista internacional sobre computación paralela gracias a LUSITANIA](#) [3]
- [\$\tau\$ -Lop: Modeling performance of shared memory MPI](#) [4]

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Links

[1] http://link.springer.com/chapter/10.1007%2F978-3-319-27308-2_17 [2] <http://www.cenits.es/proyectos/evaluacion-de-azequiampi> [3] <http://www.cenits.es/noticias/31032015-investigadores-universidad-extremadura-publican-revista-internacional-sobre> [4] <http://www.cenits.es/enlaces/publicaciones/t-lop-modeling-performance-shared-memory-mpi>