

Title (en)

PARALLEL PROCESSING FOR SOLUTION SPACE PARTITIONS

Title (de)

PARALLELVERARBEITUNG VON SOLUTION-SPACE-PARTITIONEN

Title (fr)

TRAITEMENT PARALLÈLE PERMETTANT DES PARTITIONS D'UN ESPACE DE SOLUTIONS

Publication

EP 3360050 A4 20190320 (EN)

Application

EP 16854238 A 20161005

Priority

- US 201562237425 P 20151005
- US 2016055551 W 20161005

Abstract (en)

[origin: WO2017062492A1] Systems, devices, methods, and computer-readable media are disclosed for utilizing group theoretic techniques to enable data exchange between a supervisory central processing unit (CPU) and a group of graphical processing units (GPUs). The CPU may be configured to utilize a tabu search metaheuristic to explore a solution space to determine an optimal solution to an optimization problem. More specifically, the CPU may determine a fragmentation of a solution space that yields multiple partitions of the solution space and may assign each partition to a respective GPU configured to calculate a computational result. The CPU may then determine a new fragmentation of the solution space based on the computational results received from the GPUs that yields new partitions of the solution space and may assign each new partition to a respective GPU configured to again generate a computational result based on its assigned new partition. The CPU may continue to determine new fragmentations based on the computational results of the GPUs until stopping criteria are satisfied and a timely, high-quality solution to the optimization problem is determined.

IPC 8 full level

G06Q 10/04 (2012.01); **G06F 9/28** (2006.01); **G06F 9/38** (2018.01); **G06F 13/12** (2006.01); **G06F 17/11** (2006.01)

CPC (source: EP)

G06F 13/42 (2013.01); **G06F 17/11** (2013.01); **G06N 5/01** (2023.01); **G06Q 10/047** (2013.01)

Citation (search report)

- [I] CRISTÓBAL A. NAVARRO ET AL: "A Survey on Parallel Computing and its Applications in Data-Parallel Problems Using GPU Architectures", COMMUNICATIONS IN COMPUTATIONAL PHYSICS, vol. 15, no. 02, 10 September 2013 (2013-09-10), pages 285 - 329, XP055509525, ISSN: 1815-2406, DOI: 10.4208/cicp.110113.010813a
- [I] ANONYMOUS: "General-purpose computing on graphics processing units - Wikipedia", 3 May 2015 (2015-05-03), XP055509534, Retrieved from the Internet <URL:https://en.wikipedia.org/w/index.php?title=General-purpose_computing_on_graphics_processing_units&oldid=660605616> [retrieved on 20180925]
- [A] ANONYMOUS: "Motherboard - Wikipedia", 12 May 2015 (2015-05-12), XP055509540, Retrieved from the Internet <URL:https://en.wikipedia.org/w/index.php?title=Motherboard&oldid=662045502> [retrieved on 20180925]
- See references of WO 2017062492A1

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