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Cannon's algorithm

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In computer science, **Cannon's algorithm** is a distributed algorithm for matrix multiplication for two-dimensional meshes first described in 1969 by Lynn Elliot Cannon. [1][2]

It is especially suitable for computers laid out in an $N \times N$ mesh. [3] While Cannon's algorithm works well in homogeneous 2D grids, extending it to heterogeneous 2D grids has been shown to be difficult. [4]

The main advantage of the algorithm is that its storage requirements remain constant and are independent of the number of processors. [2]

The Scalable Universal Matrix Multiplication Algorithm (SUMMA)^[5] is a more practical algorithm that requires less workspace and overcomes the need for a square 2D grid. It is used by the ScaLAPACK, PLAPACK, and Elemental ௸ libraries.

See also [edit]

Systolic array

References [edit]

- ^ Lynn Elliot Cannon, A cellular computer to implement the Kalman Filter Algorithm ☑, Technical report, Ph.D.
 Thesis, Montana State University, 14 July 1969.
- 2. ^ a b Gupta, H.; Sadayappan, P.: Communication Efficient Matrix-Multiplication on Hypercubes 龄, dbpubs.stanford.edu
- 3. * 4.2 Matrix Multiplication on a Distributed Memory Machine &, www.phy.ornl.gov
- 4. ^ Ph.D. Research ₺, graal.ens-lyon.fr. The thesis itself is not available from the archived link.
- 5. ^ Robert A. van de Geijn and Jerrell Watts, SUMMA: scalable universal matrix multiplication algorithm &, Concurrency: Practice and Experience. Volume 9, Issue 4, pages 255–274, April 1997.

External links [edit]

- mu.oz.au ₺

v· t· e	Numerical linear algebra	[hide]
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†† This applied mathematics-related article is a stub. You can help Wikipedia by expanding it.

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This page was last modified on 29 June 2015, at 15:05.

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