

Paper Submission

Authors are encouraged to submit high-quality, original work that has neither appeared in, nor is under consideration by, other journals.

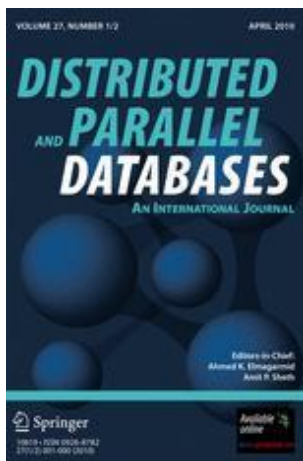
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Important Dates

- Paper Submission: January 30, 2014
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Special Issue Call for Papers

Data Management on Modern Hardware

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The evolution of hardware technology followed Moore's Law closely for many years before—roughly a decade ago—power and thermal limitations prevented further performance improvements from occurring through changes in the underlying hardware alone. Since then, hardware development has become turbulent, creating challenges and opportunities for data management. Recent hardware advances include multi-core CPUs, many-core graphics processors (GPUs), field-programmable gate arrays (FPGAs), flash storage, and non-volatile memories (such as phase change memories, PCM), and other new storage and interconnection technologies. The resulting systems are complex and often do not follow classical system models.

Changes in the hardware landscape require us to rethink traditional data management architectures, algorithms, and implementations to fully exploit the hardware power. At the same time, the advent of Big Data applications, in particular those in data-intensive sciences and the Internet, creates an increased demand for data management techniques that scale with data, system, and network sizes. To satisfy this demand, data management systems must adapt to and leverage new hardware technologies.

In this special issue, we seek for high quality research ideas related to data management on new hardware. Topics that are of particular interest include:

- Data processing algorithms on multi-core processors, co-processors, and GPUs
- Parallel database algorithms, including those for NUMA architectures
- Data management using flash and phase change memories
- Data management architectures for low-power computing
- New system designs (e.g., using FPGAs, off-load engines, or tailor-made co-processors)
- Transaction processing on modern hardware
- Compiler and operating system advances for data management on modern hardware
- Performance analysis of database workloads on modern hardware
- Big data applications with hardware acceleration