GridKa School 2015
Big Data Virtualization Modern Programming

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Parallel Programming using FastFlow

FastFlow is an open-source C++ research framework to support the development of multi-threaded applications in modern multi/many-core heterogeneous platforms.

The framework provides well-known stream-based algorithm skeleton constructs such as pipeline, task-farm and loop that are used to build more complex and powerful pattern: parallel_for, map, reduce, macro data-flow interpreter, genetic-computation, etc.

During the talk we introduce the structured parallel programming framework FastFlow and we discuss problems and issues related to the run-time implementation of the patterns. In particular we will discuss:

- algorithmic skeleton approaches and the associated static (template based) or dynamic (macro-data-flow based) implementation
- management of non functional features, with particular focus on performance
- different optimisations aimed at targeting clusters of multi-core
- heterogeneous architecture targeting (including GPGPUs, Intel Xeon PHI and Tilera Tile64)

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