

# Energy to Solution vs Time to Solution, towards energy-aware HPC applications

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Energy efficiency is quickly gaining importance in the HPC field.

High-end processors are evolving towards more advanced power-saving and power-monitoring technologies, while low-power processors, designed for the mobile market, are gaining interest in the HPC area thanks to their increasing computing capabilities, in conjunction with their competitive pricing.

On the other hand, from the software point of view, HPC applications are still optimized mainly for performance, often neglecting energy considerations, despite the fact that data-centers in the near future may start to account for consumed energy, instead of running time.

In this work we explore how HPC applications may become more energy-aware; in particular we explore energy-profile benchmarks of actual HPC applications on different architectures, in order to compare their energy performance, but also to identify different available software strategies to tune energy consumption.

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