

# Mont-Blanc 2/3

## Mont-Blanc 2

The limiting factor in the development of an Exascale High Performance Computer System is power consumption. The Mont-Blanc2 project focused on the task to develop a next generation HPC system using embedded technologies to reach this difficult task. After the development of the hardware architecture in the first phase of the Mont-Blanc project, Mont-Blanc2 focused more on the developed of the necessary system software stack and evolution of the system design. It examined a new programming model allowing to write efficient code for the new computer architecture. It emphasized tools for the programmer like debugger and performance analysis tools, which increase the usability of such a system for the users.

The main contribution of HLRS is the development of scalable debugging tools. In particular, HLRS extended the task-based graphical debugger Temanejo with support for the OmpSs programming model, and support for multi-node debugging. In addition, HLRS also contributed to evaluation of the programming model and prototype system by porting and benchmarking an application from the engineering domain.

**Funding Agency: EC FP7**

**Runtime: 01.10.2013 – 31.1.2017**

## Mont-Blanc 3

The Mont-Blanc project aims to design a new type of computer architecture capable of setting future HPC standards, built from energy efficient solutions used in embedded and mobile devices. The project has been running since 2011 and was extended in 2013 (Mont Blanc 2) and 2015 (Mont Blanc 3), respectively. In particular, Mont Blanc 3 will enable further development of the OmpSs programming model to automatically exploit multiple cluster nodes, transparent application checkpointing for fault-tolerance, support for ARMv8 64-bit processors, and the initial design of the Mont-Blanc Exascale architecture. HLRS contribution to the project is twofold. Firstly, we will participate in the development of the programming model, in particular combining MPI and OmpSs into a hybrid, task-aware MPI/OmpSs. This will allow to overlap MPI communication with computation with minimal effort for the application programmer. Secondly, HLRS will contribute to the evaluation of the programming model and the architecture by porting a representative scientific application.

**Funding Agency: EC H2020**

**Runtime: 01.10.2015 – 31.09.2018**

Project Partners:



Further Information:

<https://www.montblanc-project.eu/>