

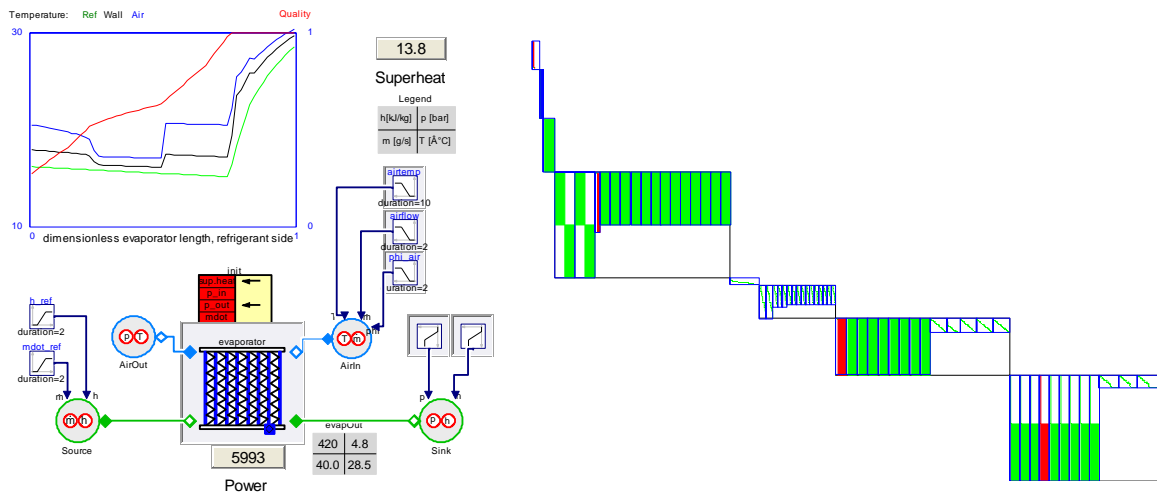
Parallel Model Execution on Many Cores

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Modelica gives the possibility to compose more and more detailed models since model components can be reused. This means that simulation needs to be faster. One possibility is then to use multi-core technology. Recent advances with more than 1000 cores show the potential.

The problem is then how to utilize this enormous processing power in a user friendly way. Partitioning needs to be made automatically. Modelica gives good possibility to automatically partition the model equation execution into separate threads since it is a declarative language based on equations.

This paper describes a method to automatically parallelize model equations implemented in Dymola. A speed-up of 3.4 times has been achieved using 4 cores/8 threads.



Parallel Schedule for Evaporator execution on max 16 cores