

Hewlett-Packard Keeps Processors Cool with FloTHERM

MECHANICAL ANALYSIS
Electronics Thermal

Design Challenge

Hewlett-Packard Company is a leading manufacturer of blade servers. The high power density of today's blade servers poses serious thermal management challenges, particularly dissipating heat from high power components such as the CPU.

To compound the problem, some architectures require that the CPUs be placed back-to-back so that the front processor preheats the air before it reaches the back processor. This makes it very difficult to cool the back processor.

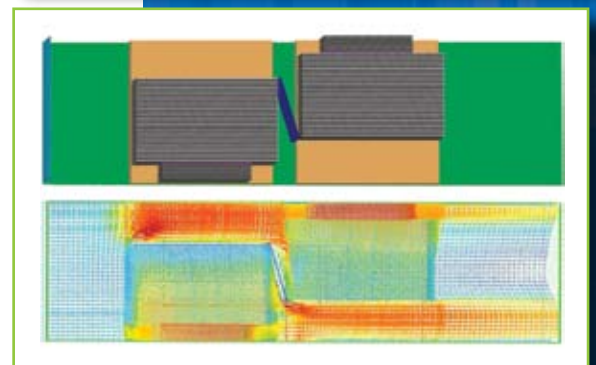
Solution and Benefits

FloTHERM software was used recently throughout the design process for a new blade server, from proof-of-concept to prototype. The FloTHERM CFD analysis involved designing and optimizing the heat sinks as well as visualizing the flow past the inclined baffle that connects the two heat sinks. FloTHERM's "sloping block" smart feature was used to represent the inclined baffle and the parametric optimization tool was used to design and optimize the heat sink. The FloTHERM analysis helped substantially reduce design time and provided significant cost savings. In addition, the FloTHERM analysis helped meet the weight targets of the heat sinks.

Customer Testimonial

"We use FloTHERM as our CFD analysis tool because FloTHERM is well-structured and easy to use compared to other CFD tools, and Mentor Graphics' Mechanical Analysis Division provides the best technical support. The support team is very knowledgeable and responses are always well coordinated."

Shailesh Joshi, Thermal Analyst,
Hewlett-Packard Company



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