

# Intersil Gains Competitive Advantage Through Thermal Analysis

MECHANICAL ANALYSIS  
Electronics Thermal

## Design Challenge

Intersil Corporation (ISIL) is a leader in the design and manufacture of high performance analog semiconductors. Hoping to turn thermal performance into a competitive advantage, rather than a potential late-cycle design flaw, Intersil chose to use the suite of analysis tools from Mentor Graphics' Mechanical Analysis Division to characterize their most recent package designs. One such package was a custom CSP design for a Tier-1 customer. The customer required verification that this custom design would meet their thermal requirements in a number of different environments.

## Solution

Intersil jumpstarted the verification using one of the many templates that are available in FloTHERM<sup>Pack</sup> as JEDEC outlines for CSP packages. Material properties were updated along with some of the internal geometric constructions to conform to custom design. The customer CSP package model was then dropped into FloTHERM where it was quickly evaluated in a wide variety of customer specific applications using the parametric design capabilities automated within FloTHERM.

## Benefits

Intersil brought the suite of products in-house for the following reasons:

- thermally characterize production packages
- quickly investigate future designs for thermal feasibility
- support Tier-1 customers with thermal verification and thermal design-in

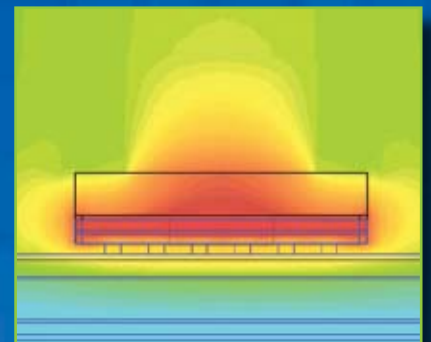
In the end, Intersil was able to quickly and confidently predict the thermal performance of the custom CSP package using FloTHERM<sup>Pack</sup> and FloTHERM. Now that the customer's thermal questions have been assuaged, Intersil can move on to the next phase of contract negotiations.

## Customer Testimonial

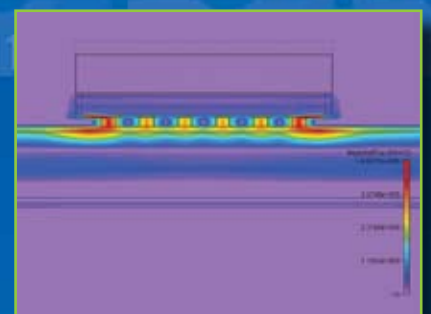
*" Our original investment in Mentor Graphics' Mechanical Analysis tools was based on their excellent reputation for providing design-class software solutions. The combination of FloTHERM<sup>Pack</sup> and FloTHERM allows us to quickly explore design variations at the package level, but it also allows us to provide system-level thermal verification of our products in our customer's most challenging environments. In addition to delivering a great product, the Mentor Graphics Applications Team really delivered value for us by reducing our ramp-up period in the middle of a critical project for a Tier-1 customer. "*

Dan Mendoza, Packaging Engineer,  
Intersil

Temperature distribution on custom CSP package



Heat flux for custom CSP package. The high heat flux rates at the interface of the motherboard and component illustrate the significance of the top-layer on package thermal performance



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