

FloEFD for Electronics Cooling

MECHANICAL ANALYSIS
Engineering Fluid Dynamics
Electronics Thermal

Mentor Graphics' Mechanical Analysis Division has been the clear market leader in thermal analysis of electronics systems since launching the FLOTHERM software in 1989. Now, Mentor Graphics brings you FloEFD (Engineering Fluid Dynamics) – a different breed of CFD software that is fully embedded in your mainstream mechanical design environment.

FloEFD enables you to:

- Create heat transfer and fluid flow simulations directly from 3D CAD models, with no need for data translations or copies
- Solve thermal problems in electronics enclosures with complex curvilinear geometry, including thin curved shells
- Simulate advanced physical processes such as phase change in thermal interface materials; joule heating, etc
- Solve complete conjugate heat transfer problems involving conduction, natural/forced or mixed convection, fully coupled with radiation effects if required
- Access an extensive materials library
- Use libraries of ready-to-run models for common parts such as fans, standard JEDEC* components, and thermal interface materials (as supplied by Bergquist, Chomerics, Dow Corning, Fujipoly and Thermagon)
- Simulate heat-sink designs with complex shapes
- Simulate thermo-electric coolers (TECs) and heat pipes directly

From CAD to Analysis Effortlessly

Unlike other CFD tools, FloEFD was developed for engineers by engineers so it works the way you do. FloEFD transforms and extends your preferred CAD software and extends your preferred CAD software into a powerful simulation tool right on your desktop. Now you can create a new concept design with CAD and use the same geometry directly to:

- Understand and improve product performance and reliability
- Test without building physical prototypes
- Identify and eliminate potential thermal problems before they become actual problems

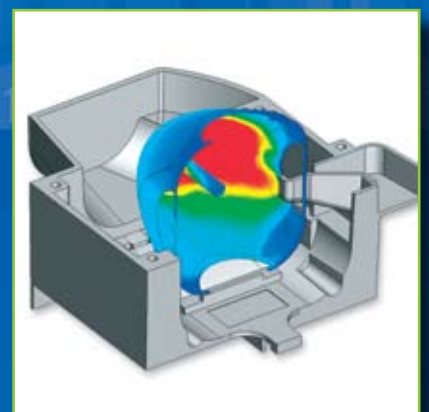
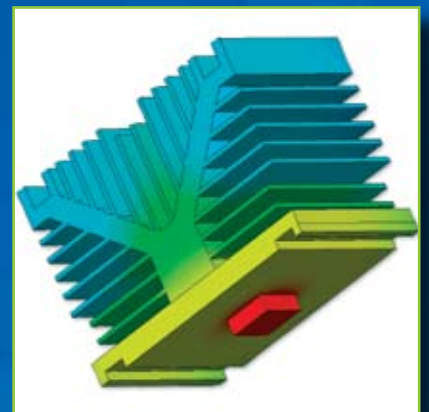
*JEDEC = Joint Electron Device Engineering Council. JEDEC covers the standardization of discrete semiconductor devices and integrated circuits



Customer Testimonial

"The efficient and skilled support staff at Mentor Graphics - Mechanical Analysis Division, is now part of our design team, knowing that we can rely on quick and very accurate responses to our CFD problems."

G. Sillitoe,
Principal Mechanical Design Engineer,
Ultra Electronics - PMES



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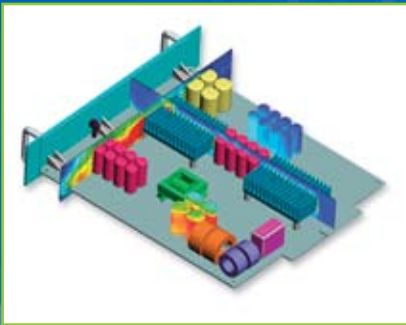
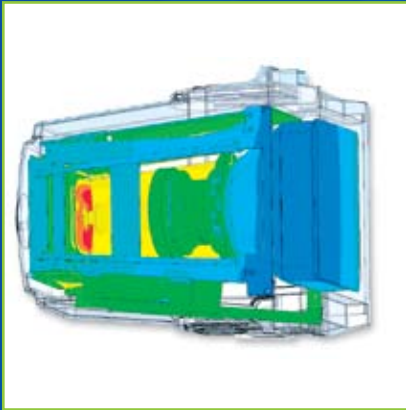
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“What-if?” Testing Made Easy

One of the most powerful features of FloEFD is the ease with which you can conduct “what-if?” analyses. FloEFD makes it simple to clone/modify your models and analyze design variations.

The process is very simple. Create your base model and analyze it. Then create multiple variations of your design by modifying the solid model without having to reapply boundary conditions, material properties etc. When the analysis is complete, FloEFD makes it easy to compare the results among the many options to choose your best possible design.

When you are satisfied with your design, publish your report at a touch of a button. You can even publish a fully interactive 3D dynamic plot and share it with colleagues or customers.

In short, FloEFD solves your thermal problems and reduces your prototyping costs without requiring you to become an analysis specialist.

Electronics Manufacturers Around the World Depend on Mentor Graphics’ Mechanical Analysis Division for Design Optimization

- | | |
|------------------------------------|---------------------------|
| Alcatel | Philips |
| Alpha Technologies | Ricoh |
| Axeon Power | Samsung Electronics |
| Barco | Sanyo |
| Broadband Access Systems | Semelab |
| Canon | Sharp Laboratories |
| Cenix Inc. | Siemens AG |
| Clickarray Networks | Sony |
| Dacor | Sorrento Networks |
| Eastman Kodak | Sumitomo 3M Ltd. |
| E.G.O. Elektro-Gerätebau GmbH | Takaoka Electric Mfg |
| Fuji Electric | Teradyne |
| Fujitsu Laboratories Ltd. | Thales |
| Harris Corporation | Toshiba |
| iXsystems | Turin Networks |
| Matsushita Electric Industrial Co. | Tyco Electronics |
| Mitsubishi Electric | ViaSAT Inc. |
| NEC Research Institute | Xeboo Communications |
| Network Elements | Xillix Technologies Corp. |
| Océ Printing Systems | |

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