# Simcenter Flotherm XT Software

Flotherm XT - Leading Innovation in Electronics Cooling

Flotherm XT has been developed to facilitate electronics thermal design from concept to verification, with a consistent data model throughout and the seamless ability to import data from other mechanical design automation (MDA) or EDA sources as required in a particular design process. This design lifecycle support is inherent in Flotherm XT's design and infrastructure: using SmartParts to build a simple concept model in minutes; work with complex mechanical parts directly from MCAD; create your own CAD geometry easily and efficiently; and use detailed electronic assemblies from EDA.

What is Flotherm XT?

Flotherm XT utilizes the powerful EFD solver and mesher as an enabling technology to give the broadest possible coverage of both simple and complex electronics systems. Advanced interaction with electronic design tools is provided by FloEDA Bridge. Flotherm XT works with non-Cartesian geometry, supporting non-standard form factors, novel heatsink designs and with arbitrary, non-aligned or curved geometry. The software comes enabled with full SmartPart support for electronics modeling, including:
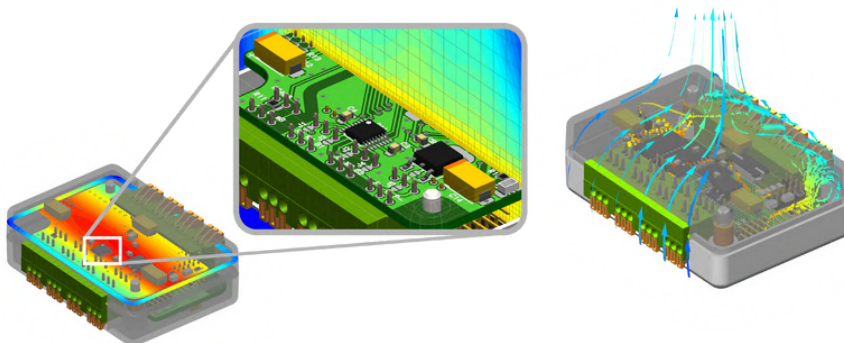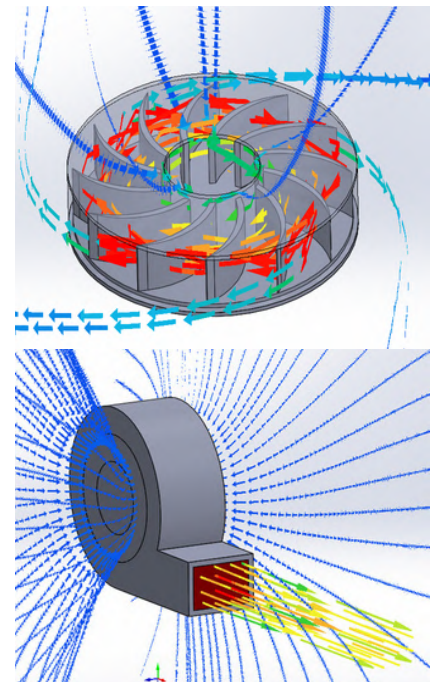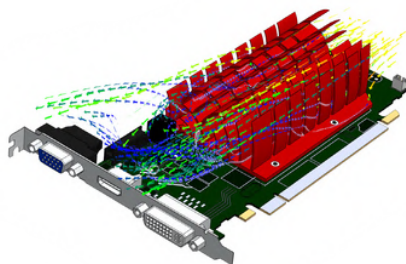

- Heatsinks
- Axial, Radial and Centrifugal Fans
- Printed circuit boards
- Thermo-electric coolers
- Enclosures
- Components
- Heat pipes
- Perforated plates

www.siemens.com/eda
www.edmd-solutions.com/flotherm-xt

We also support the import of either detailed or compact package models generated from Flotherm PACK or IC. In addition, using the CAD capabilities inherent in the software, any imported parts or SmartParts can be positioned at any arbitrary angle.

Who Can Use Flotherm XT?

Flotherm XT can be used by Thermal Design Specialists and Researchers, Thermal Designers, Mechanical Design Engineers and CAD users with thermal design responsibility. The user interface versatility has been specifically engineered to serve a diverse user group.

Flotherm users can also use Flotherm XT, as Flotherm XT can read in Flotherm project files. A Flexx license allows either Flotherm or Flotherm XT to be launched against the same license key.


High-end graphics cards require novel cooling solutions – in this case, a heatsink with curved geometry has been designed to fit the enclosure.
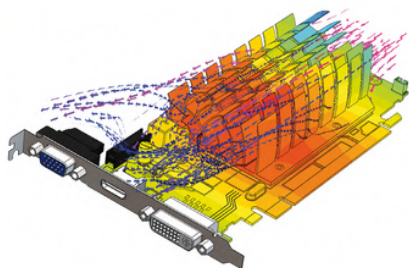

Surface temperatures and 3D particle plots can be used to assess the effectiveness of the new heatsink design.

KEY FEATURES:
• A CAD-centric solution supporting the electronics thermal sector, complementary to Flotherm.
• Supports axis-aligned, angled, arbitrary and rotating geometry.
• An appropriate tool for design engineers familiar with MCAD environments, with a CAD-centric UI, geometry engine and controls.
• Supports Flotherm style SmartPart and Library functionality.
• Supports the import of Flotherm project and assembly data as either PDML, FloXML or xCTM, as well as direct support for Flotherm material libraries.
• Supports direct interfaces with all major MCAD vendors and supports all MCAD neutral file formats.
• The FloEDA Bridge module supports Xpedition Enterprise, ODB++, and PADS.
• Able to leverage package libraries – detailed, 2-R or DELPHI - from www.flothermpack.com.
• Automatic report generation via HTML, PDF and Microsoft Word (DOCX) and Excel (XLSX).
• Parametric study environment allows easy parametric variations of CAD and Flotherm XT data, with ad-hoc and linear variations for Input Variables, Design of Experiment and Response Surface Optimization capabilities. Supports the ability to model selected copper nets and traces as detailed extrusions.
• Automatic Joule Heating, with a solution for 3D electric potential and current density for all defined geometry with a valid electrical circuit.

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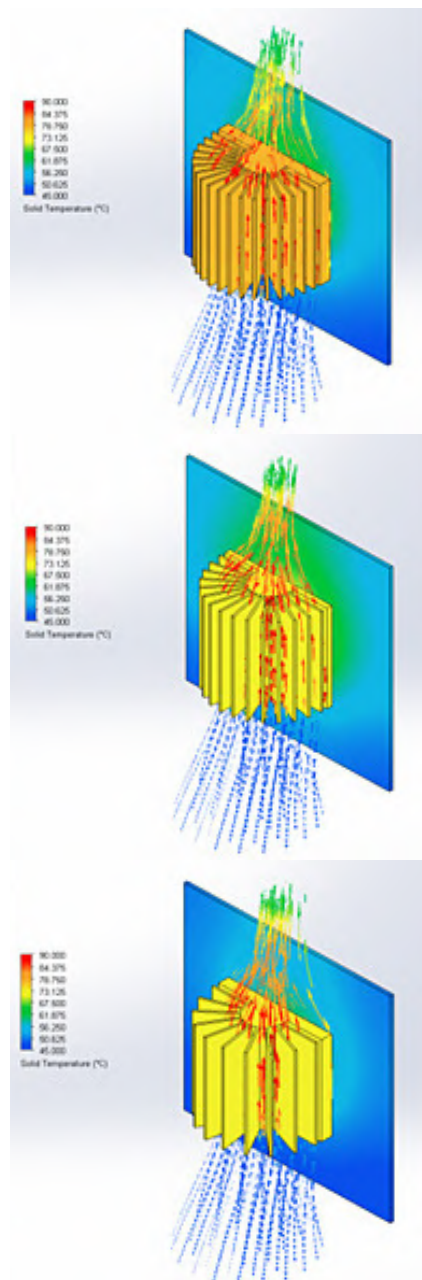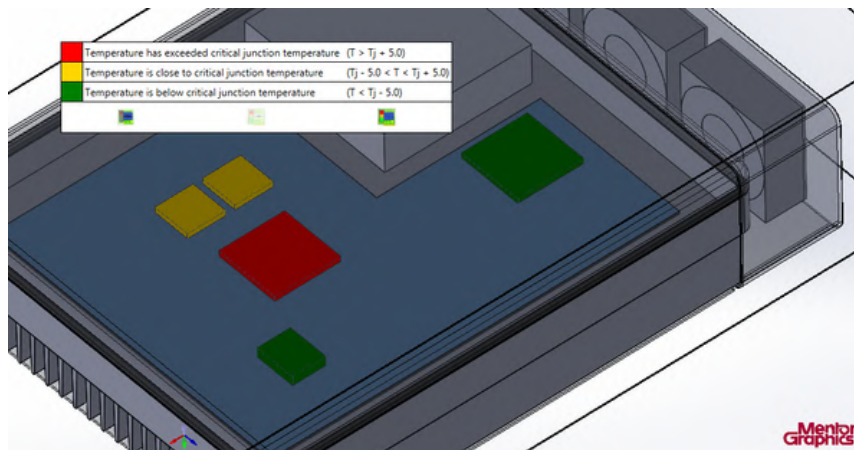
The surface temperatures on the PCB will quickly identify those devices which are non-compliant with thermal specifications.
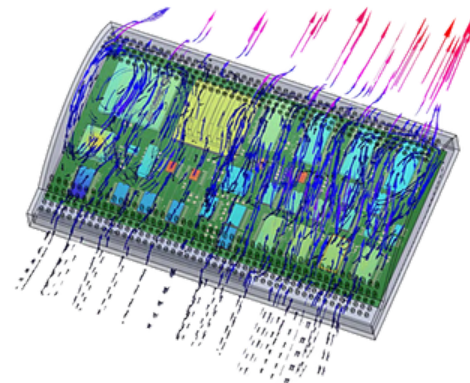
Further understanding of the cooling performance can be achieved by examining the 3D flow field using the animated particle post-processing feature.

"We are now able to start optimizing designs from the early concept stage and, using the same data model, can continue to support our clients with increasing levels of sophistication and shape complexity as they progress onto the verification/prototype phase and prepare a fully vetted design ready for manufacturing."
- Guy Wagner, Electronic Cooling Solutions

FloEDA™ Bridge

The FloEDA Bridge module provides an interface to Xpedition Enterprise Enterprise, plus support for IDF and ODB++, and includes a powerful 'EDA Sync' update function to keep models concurrent with the latest board design as it evolves. FloEDA Bridge has a full undo/redo capability and includes a board outline editor; a power mode editor to switch between multiple powered states associated with the use case for the product being designed; and detailed capture of trace layout in the thermal territory around a component. Selected nets can also be represented explicitly for Joule Heating studies.

Block, 2-Resistor, DELPHI or 'Detailed' component modeling levels can be selected, including an automated ability to 'swap-in' higher fidelity models from an existing thermal model library. T3Ster-generated RC ladder compact thermal models can be directly read in, as can Network Assembly from Flotherm PACK.

Conceptual layouts can be quickly sketched out, stack-ups imported from a user defined library, then transferred to Flotherm for preliminary thermal simulation investigations.

"Flotherm is a key component of our simulation-based design decisions strategy, ensuring that our thermal design goals are met and we can deliver on Continental's simulation vision of 'getting the product right the first time."
- Dr. Uwe Lautenschlager, Continental Automotive GmbH
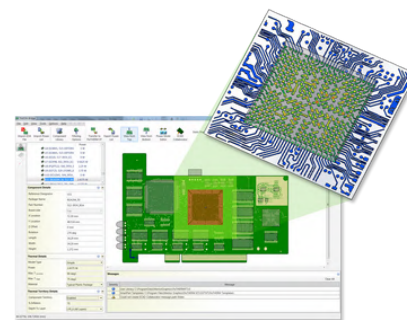
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