

15<sup>th</sup> November 2019

Dear scSTREAM / HeatDesigner Customers,

### **scSTREAM / HeatDesigner Version 2020 Release Notes**

Software Cradle is proud to announce the release of scSTREAM and HeatDesigner Version 2020, a part of the comprehensive suite of virtual product development from MSC Software.

Below is the detail of what's new to scSTREAM and HeatDesigner. For more information, visit our Users Page.

We trust you are now familiar with your software package and the supporting aids and services available to you and thank you for the investment you have made in our virtual product development from MSC Software.

#### **1. Large-Scale Analysis Capability**

##### **■ Speed-up of drawing involving large element division**

The display speed of the element division in a large scale analysis of approximately 1 billion elements has increased up to 10 times that of the previous version. A video card supporting OpenGL 4.0 or later is required.

##### **■ Optimization of cluster node**

The distribution of memory consumption on a node-by-node basis has been optimized when computing with a cluster machine. High-speed calculation can be expected in simulations experiencing memory swap issues. Analysis with more number of elements can be performed in your current environment.

##### **■ FLD file output by single precision**

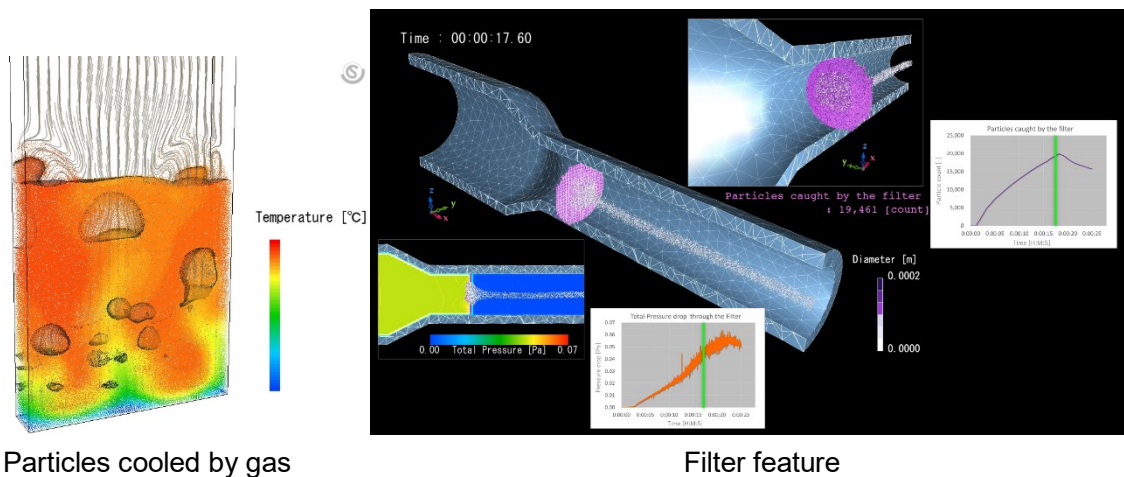
The size of the FLD file can be reduced to approximately 2/3 of that of the previous file output. This resolved the issue of when saving or transferring a large FLD file from large-scale simulations.

#### **2. Enhanced Multi-phase Function**

##### **■ DEM(Discrete Element Method)**

Heat transfer between particles and between particles and fluid can be calculated.

Flow at a clogged filter can be considered.



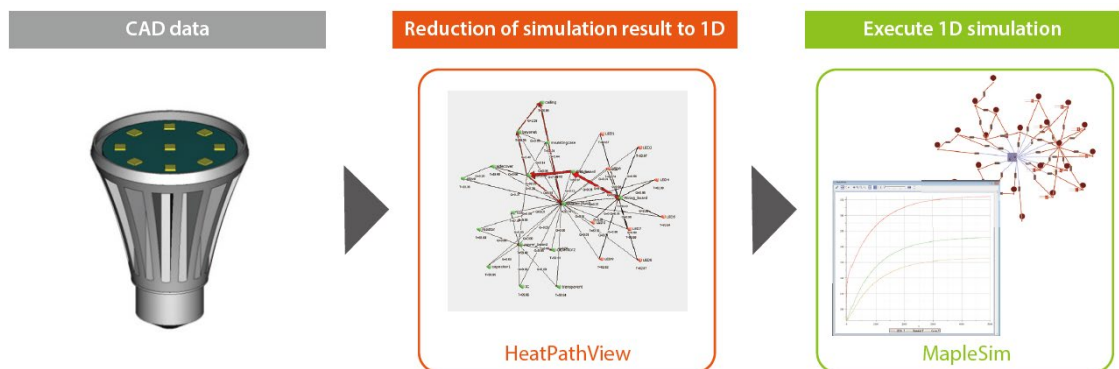
Particles cooled by gas

Filter feature

### 3. Enhanced Multi-physics Function

#### ■ Automatic Generation of Thermal Model for 1D-CAE

Heat path information generated by HeatPathView can be inherited to MapleSim. By using this function, it is possible to construct 1D-CAE model from 3D-CAD data and use it as multi domain heat transfer node.

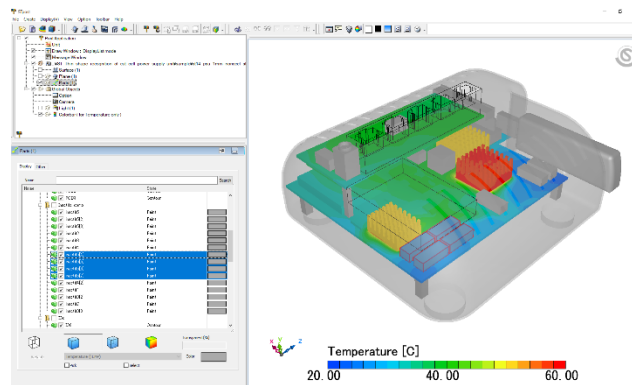


Data conversion flow chart

### 4. New Feature of Postprocessor

#### ■ Parts Object

Parts display and control similar to that in Preprocessor can be done in Postprocessor. This is effective when parts need to be control by inheriting the assembly structure or when visual appearance is most required.



Drawing and control using Part object

## 5. New Features Dedicated to Electronics Field

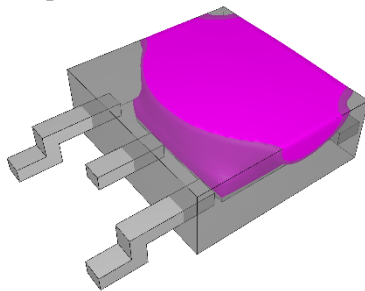
### ■ Support for ECXML format

Thermal compact models made by semiconductor manufactures and data of other CFD tools can be imported. ECXML is an open file format that does not depend on a specific CFD tool and its capability is to be enhanced by JEDEC subcommittee.

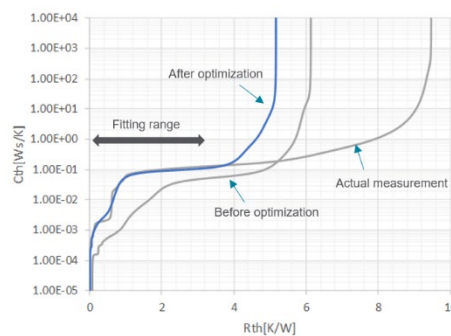
### ■ Conversion into structure function

The simulation result can be converted to a structure function standardized by JEDEC standard(JESD51-14). A highly accurate thermal compact model can be created by fitting simulation results and the actual value of the semiconductor package.

$$R_{th}[K/W] = 1.18$$



Isosurface of thermal resistance

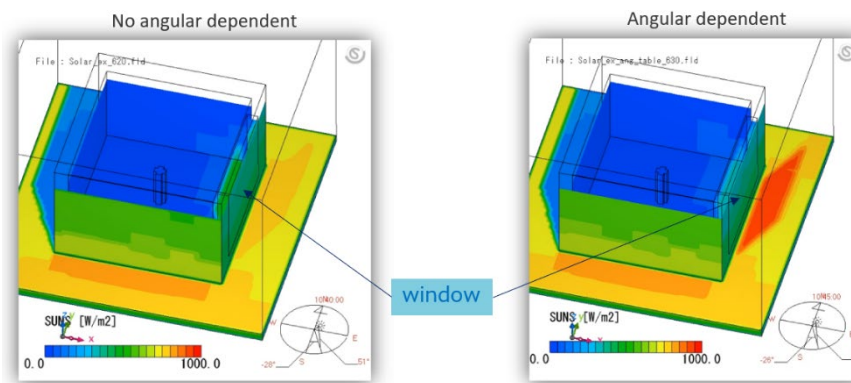


Optimization of structure function

## 6. New Features Dedicated to Architecture Field

### ■ Solar radiation absorptance considering the angle of incident

The incident angle dependent solar radiation can be considered. Postprocessor will reproduce so that the amount of solar radiation that passes through the window will be small when the incident angle is large, and vice versa.



Solar radiation considering the incident angle dependence of a plate glass

If there are any questions, please contact Cradle or MSC Software Customer Support or your local representative for assistance.

### Inquiry

For any inquiries regarding this notice, please contact us at:

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