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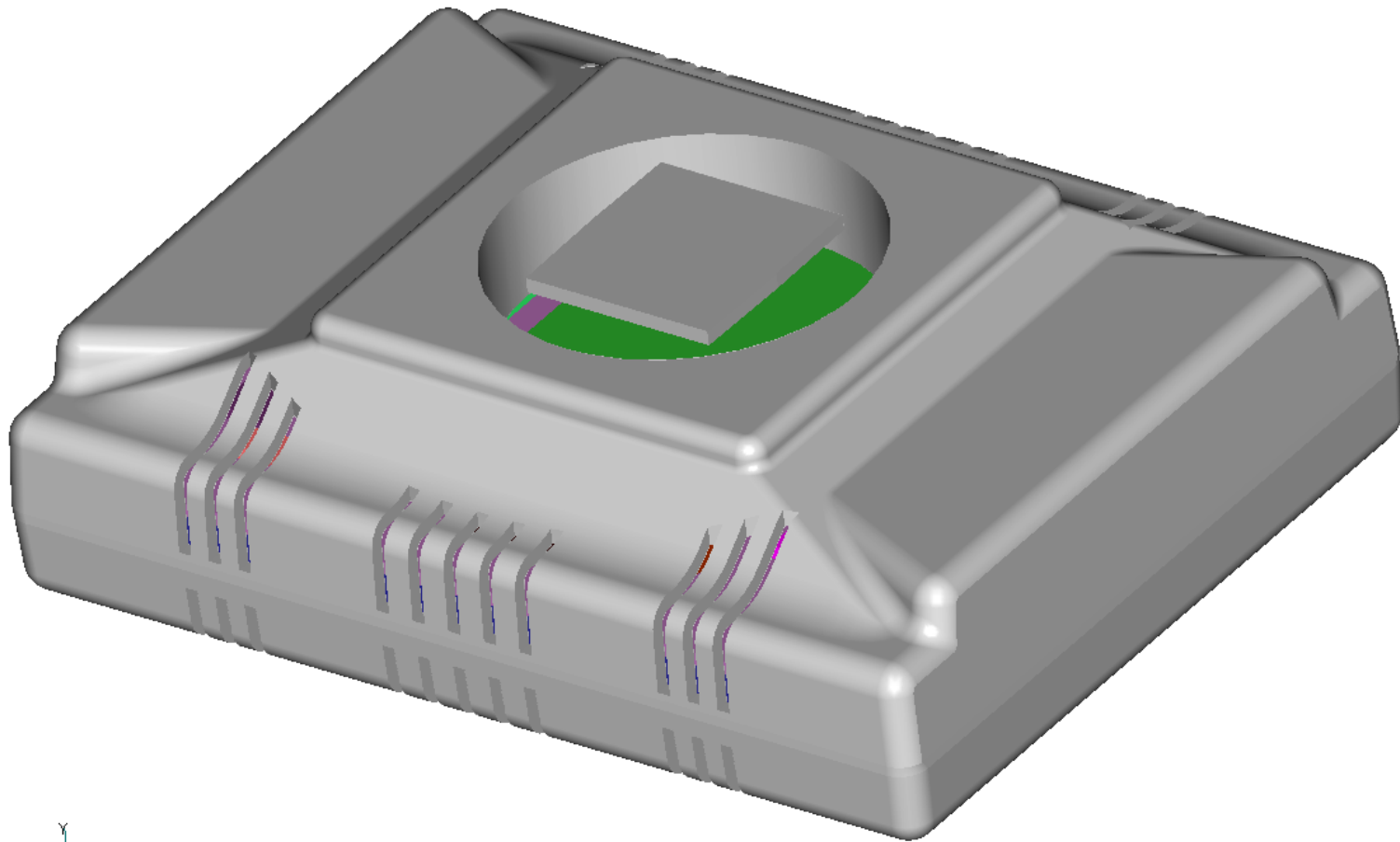
Computational Fluid Dynamics (CFD) Analysis of Cable Assembly

Precision Interconnect: Computational fluid dynamics (CFD) analysis for a world leader in the design and manufacture of complete, turnkey cable assemblies for OEMs of ultrasound, surgical, and high speed data operations. Thermal fluids analysis was performed on a tightly integrated circuit board enclosed within a plastic case. Various cooling scenarios were investigated (forced cooling via a small embedded fan and natural convection) and chip junction temperatures predicted. Based on these CFD predictions, the circuit board chip density was optimized for long term thermal survivability.

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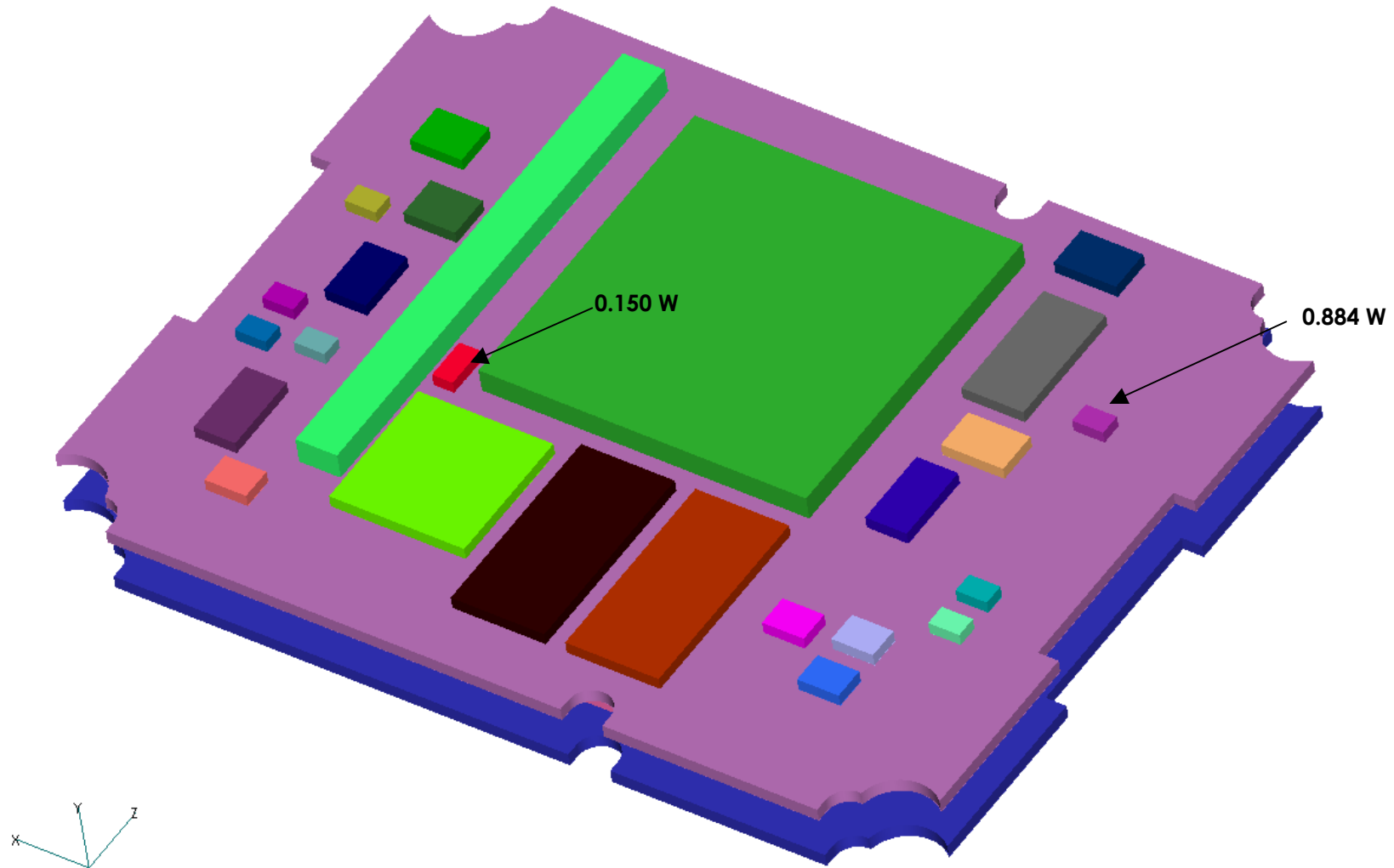


Precision Interconnect Firestorm+ project CFD structure. The outer shell is a plastic part in which two circuit boards are contained. This simulation looks at the structure's ability to shed heat via forced convection by an internal fan (not shown). A fan flow rate of 5 CFM was used in this simulation.

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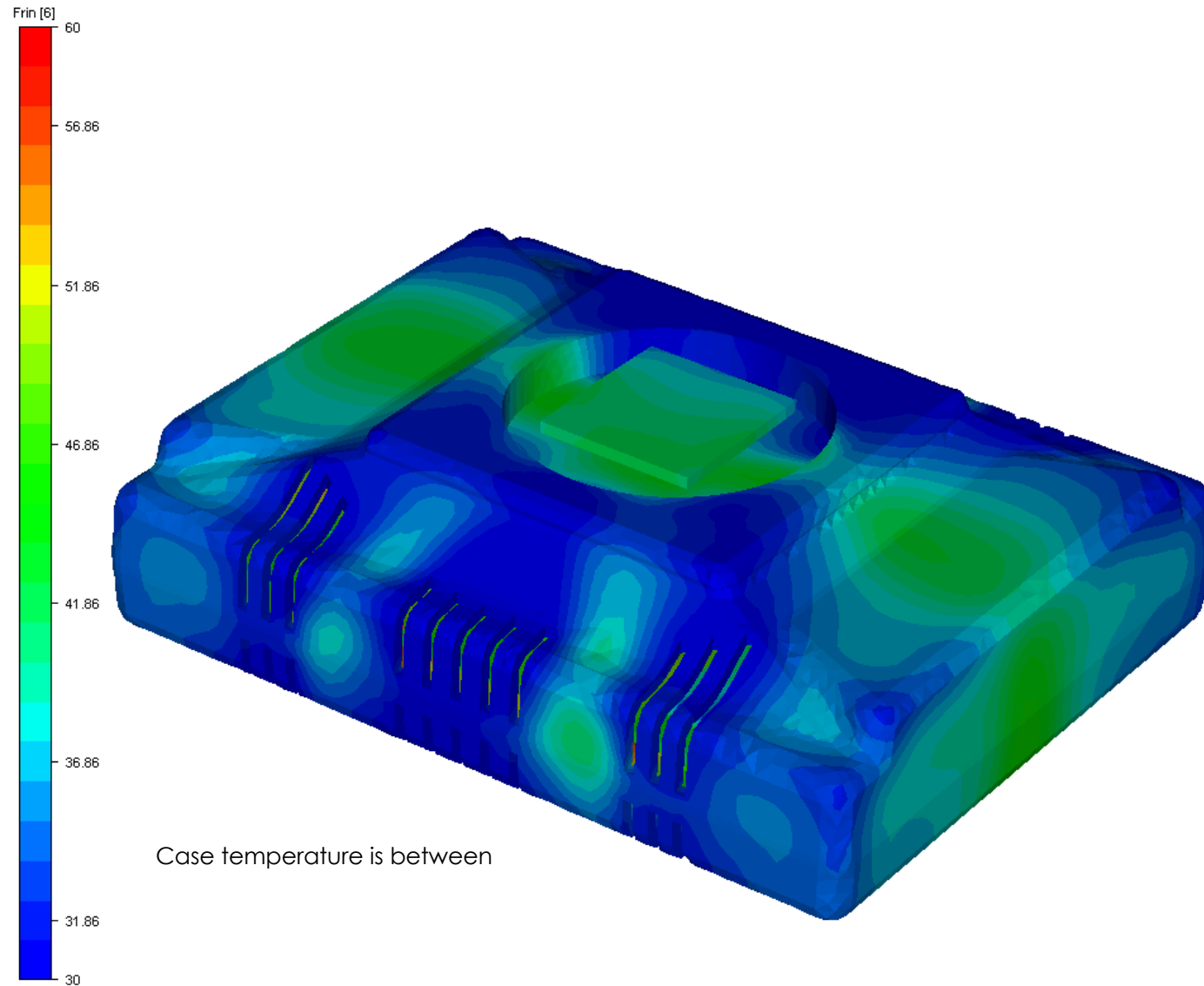
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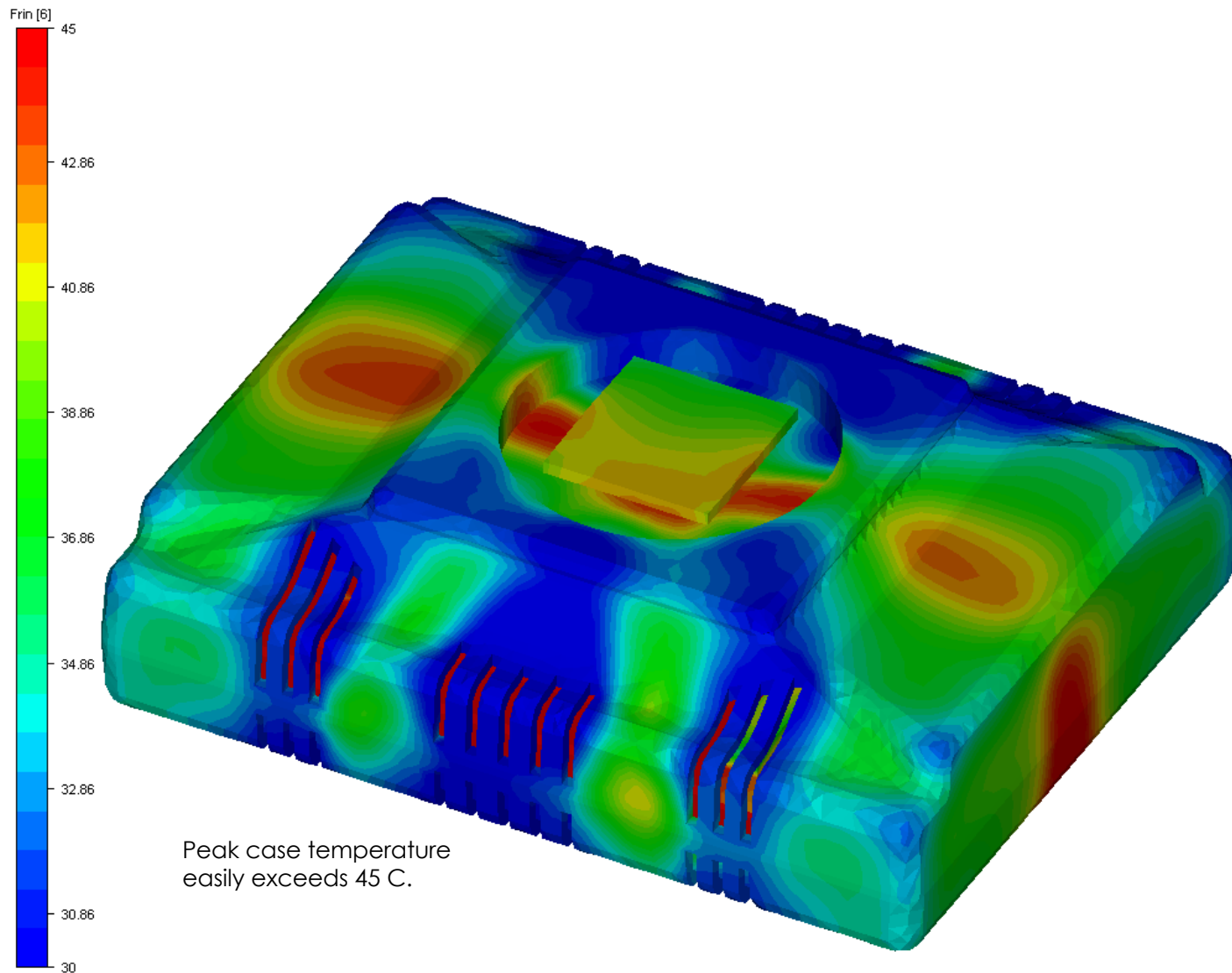
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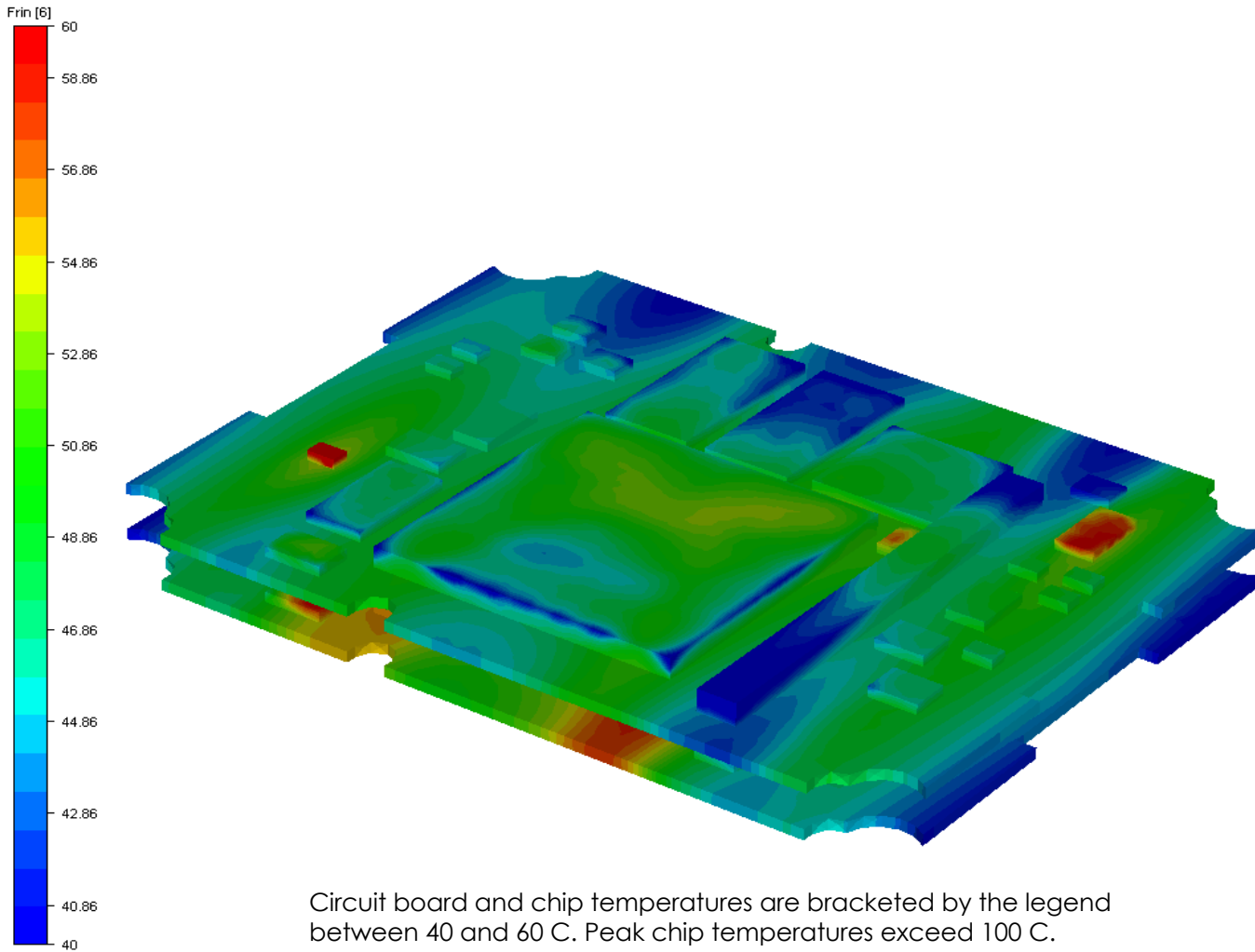
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Peak case temperature easily exceeds 45 C.

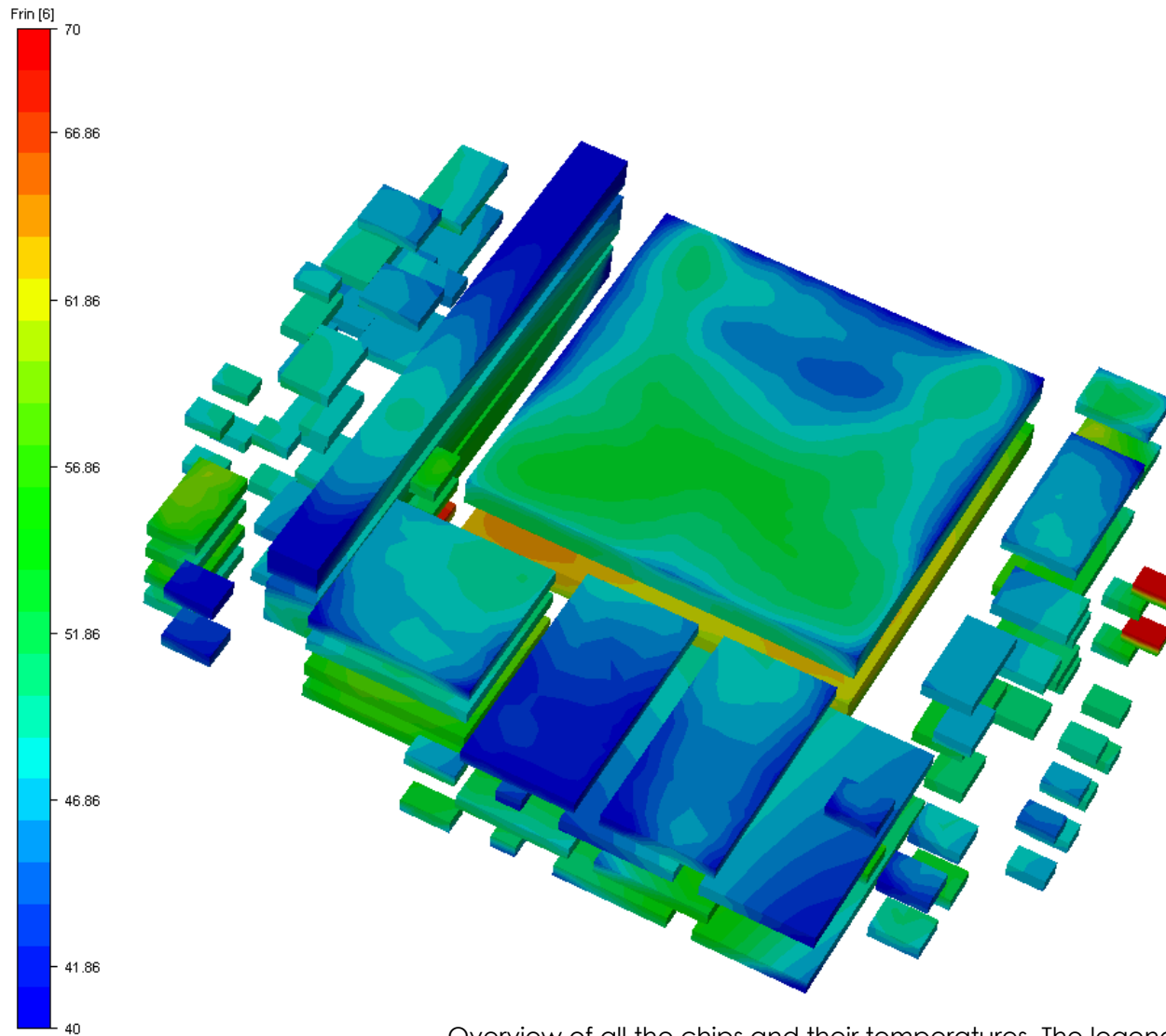
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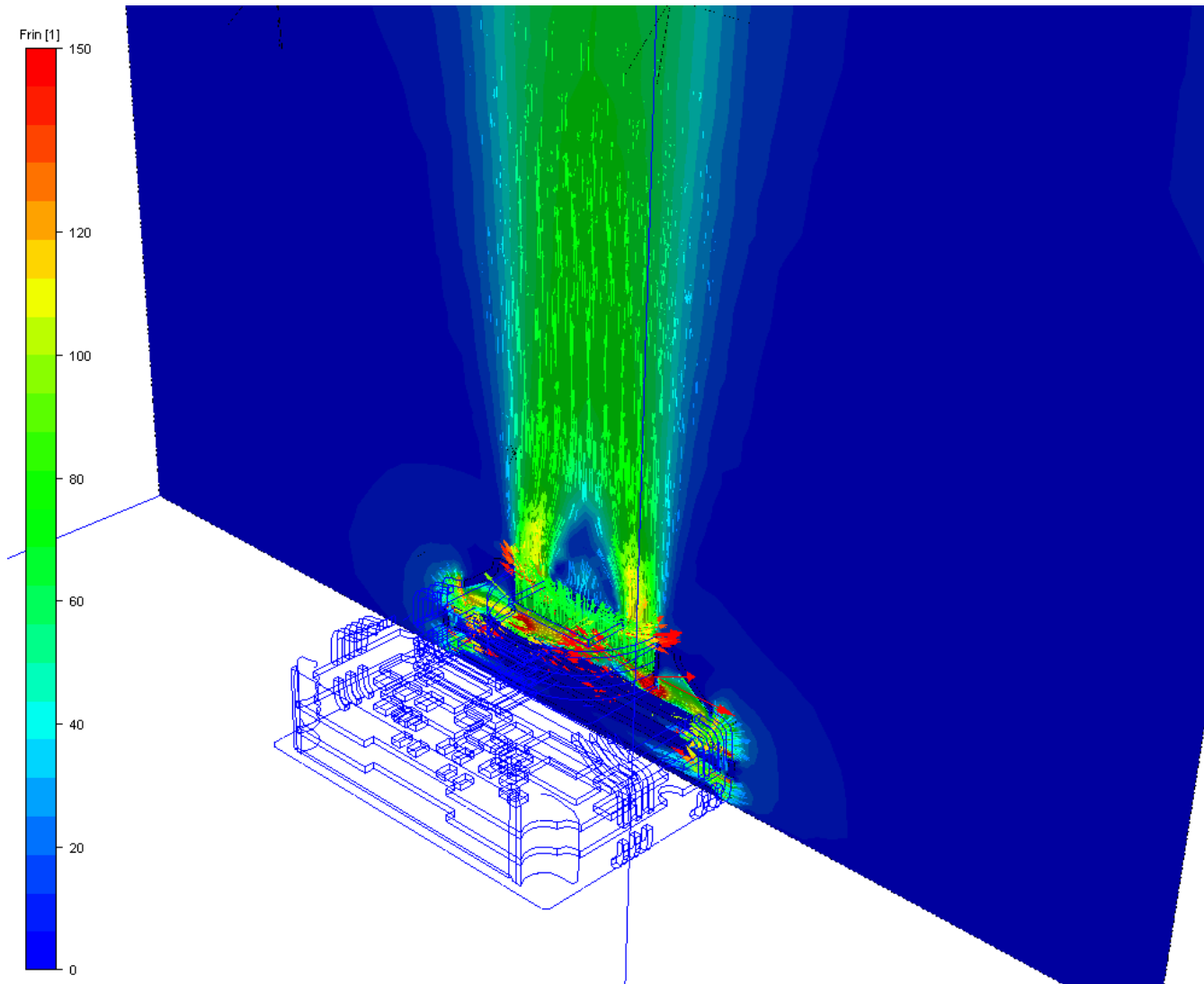


Overview of all the chips and their temperatures. The legend is bracketed between 40 and 70 C to better display the range of temperatures found within the system.



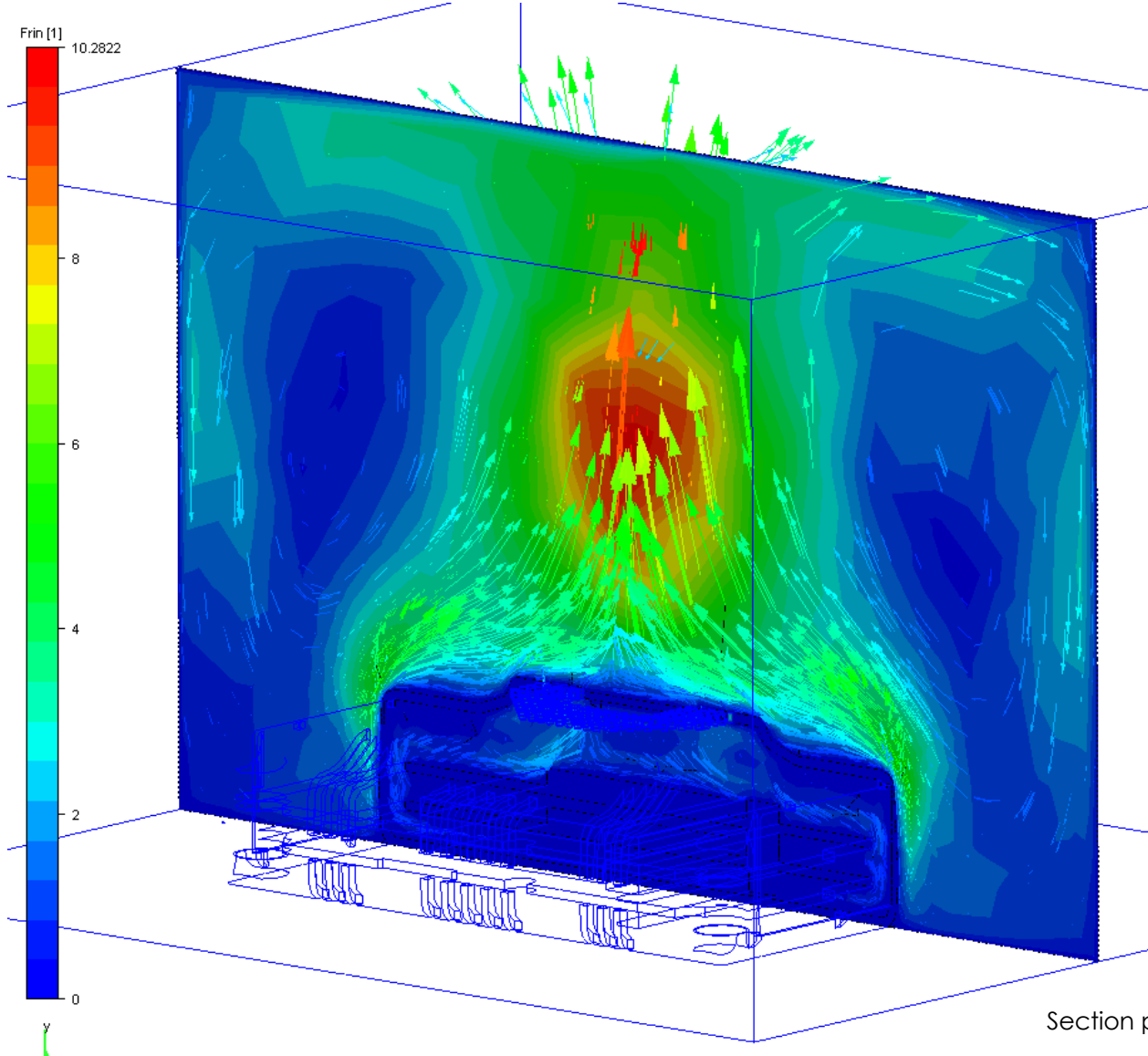
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Section plane showing general flow vectors.

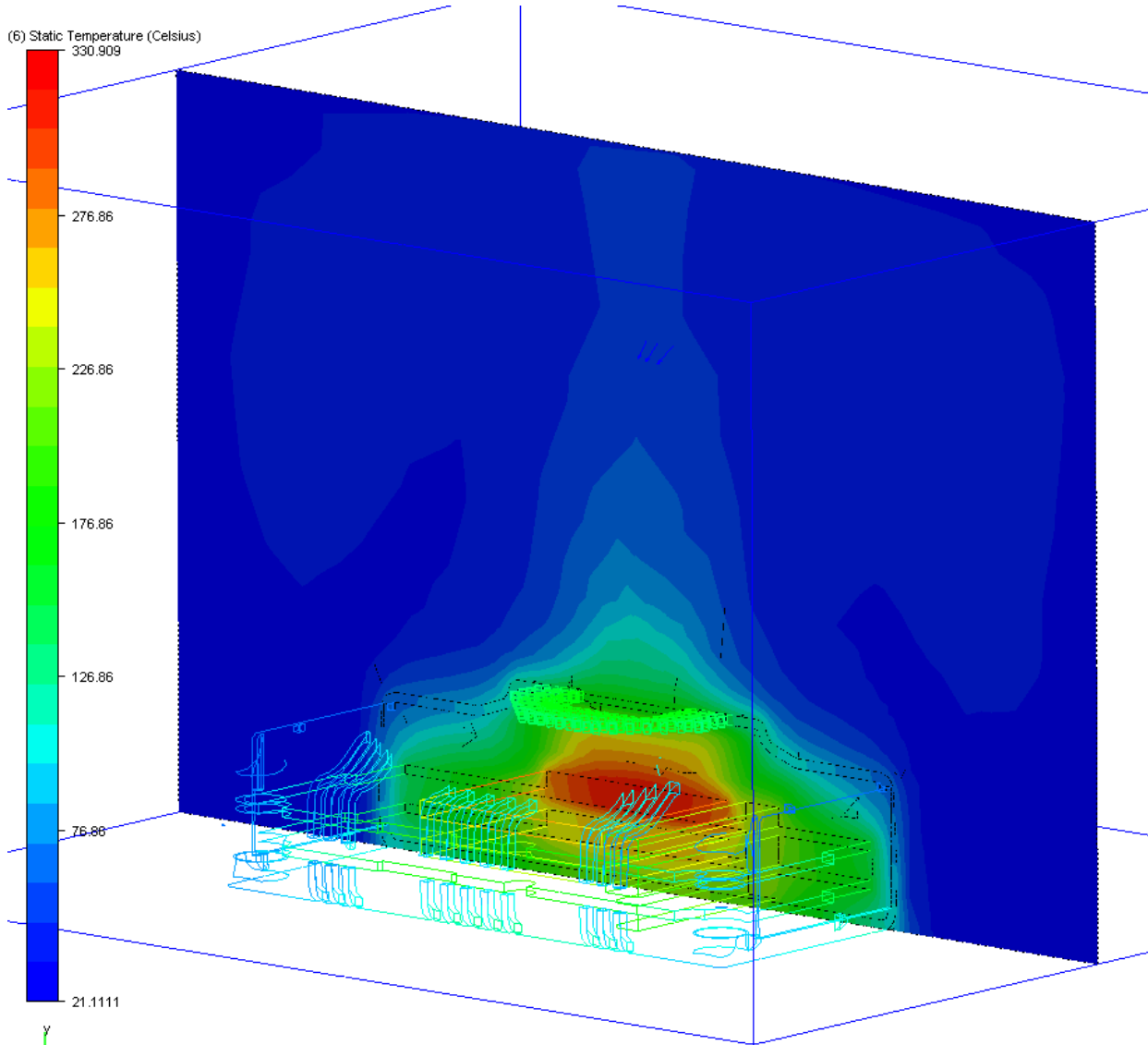
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Section plane showing general flow vectors.

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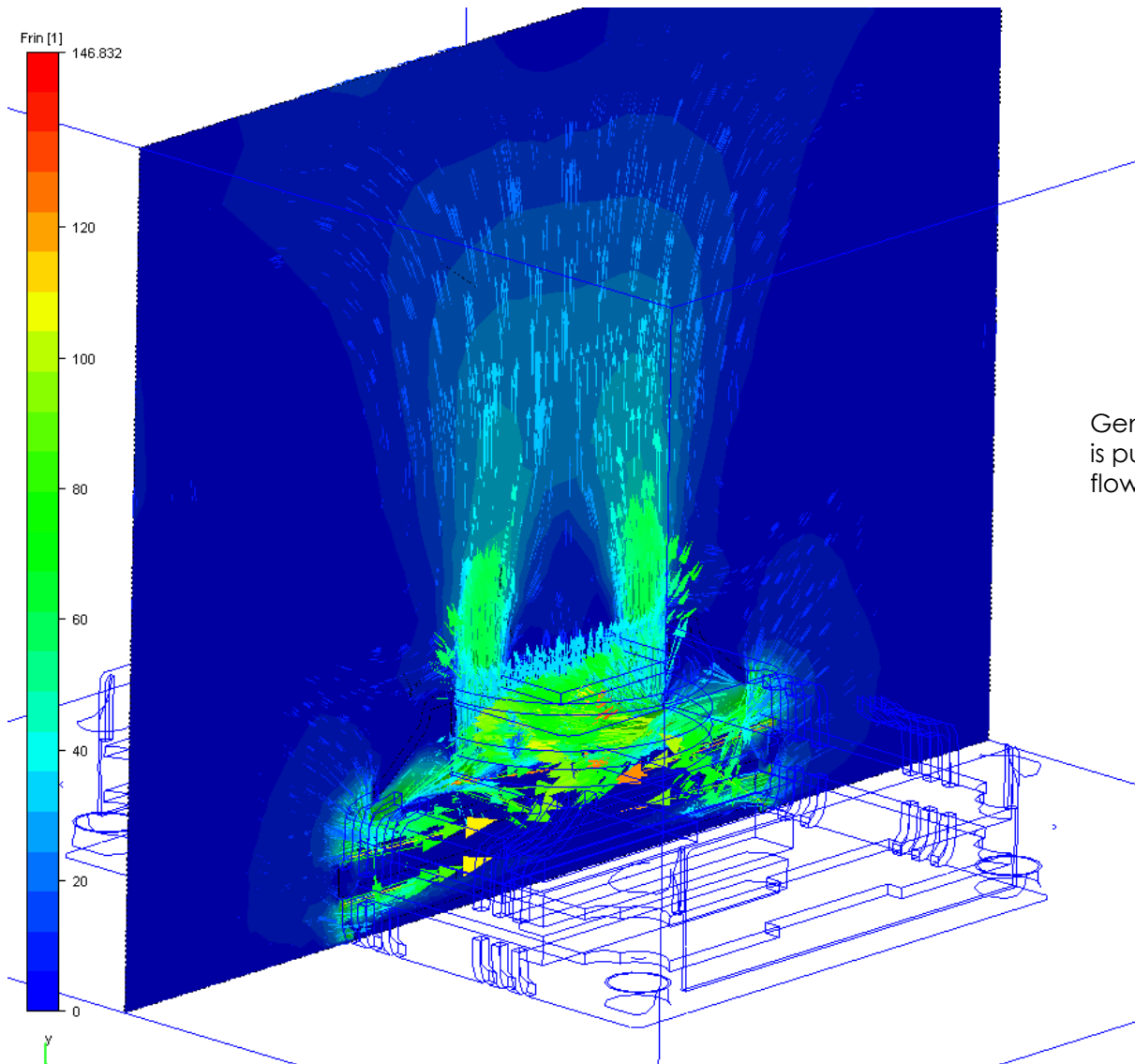
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Cut surface through the model showing the temperatures within the system. Temperatures are in centigrade.

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General flow field in the structure. The fan is pushing 2.5 CFM and creates a strong flow field within the Firestorm+ structure.