

# 6SigmaET + VR

*Development / Design Tool of the Year (2018 / 2019)*

*"Thermal simulation software allows engineers to assess the thermal performance of electronic components and assemblies – enabling the creation of products that are ultra-compact and ever more reliable."*

## **At a glance:**

- World's first ever thermal simulation platform to adopt VR technology
- 35% faster project times than its nearest competitor
- Industry-leading solve times and cloud-solving support
- Adoption by Alcatel Lucent, OTS, BOSCH and Selex ES

**6SigmaET** is a thermal modelling tool specifically developed for electronic component and electronic system design. Through the use of advanced Computational Fluid Dynamics 6SigmaET is able to predict the temperature and airflow in electronics. A unique unstructured grid solver makes it possible to generate accurate thermal simulations up to twice as fast of other structured grid solutions.

In 2018, 6SigmaET launched the latest edition of its thermal simulation suite, which brings unprecedented innovation to the platform. At the heart of this innovation is support for virtual reality technology and an integration with the Oculus Rift VR headset.

Using this headset, 6SigmaET enables users to physically enter their designs, allowing engineers to 'walk around' inside their simulations, monitoring for potential thermal complications in 3D. This ground-breaking innovation is the first time that VR technology has been incorporated into a simulation platform, providing engineers with a whole new perspective for thermal management and a glimpse into the future of electronics designs.

In addition to the VR support, the latest version of 6SigmaET also includes support for a new 'vendor neutral file format' for thermal simulation. For years, thermal

engineers have struggled to switch between different thermal solutions, with file formats traditionally only being compatible for the software suites in which they were designed. This incompatibility helped thermal simulation providers 'lock in' users, but were ultimately bad for designers and ultimately bad for the industry as a whole.

Recognising this fact, Future Facilities worked on the development of a new neutral file format alongside Motorola, Intel and several of its industry competitors. The result was a single file type, incorporated into 6SigmaET's latest release, that can be used across any thermal simulation package.

The new release also builds upon 6SigmaET's existing award-winning simulation technology, including the platform's distinctive unstructured gridding capability. This minimises solve times by altering the granularity of its grids to account for varying complexity within each design, allowing users to run more variations of their designs, with greater accuracy, in less time.

The new release also reinforces 6SigmaET's ongoing commitment to cloud-solving, continuing the company's partnership with cloud platform Rescale. Through the Rescale web interface, 6SigmaET users are able to allocate computing resource on a model-by-model basis, paying for only the processing power they require. This helps to reduce development costs while providing access to a near-unlimited computing resource. With this resource, electronics engineers are able solve up to 300 million grid cells in a single simulation, allocating hundreds of processor cores for each solve.

In one independent study, conducted by international electronics group Rohde & Schwarz, 6SigmaET's platform was found to be 35% faster than its nearest competitor within the thermal simulation market (see supporting materials for details). An earlier study, conducted by aerospace giant Thales found 6SigmaET to be eight times faster than a leading competitor when it came to the organisation's simulation requirements.

Since its launch, the latest version of 6SigmaET has received positive write-ups and reviews from both the electronics design and the VR industry media across Europe and the US.

### **Testimonials for 6SigmaET:**

“A comprehensive standalone tool, 6SigmaET doesn’t need additional MCAD software for data entry, which means it is especially straightforward to use. The software is fast, fits our thermal modeling needs perfectly, and experimental testing in our laboratories has proven that the simulation results predict component temperatures with accuracy.” - Norbert Englebarts, Director, OTS

“Using the quick and accurate thermal simulation features in 6SigmaET, we were able to cut our modeling time by 30%. The platform’s high-performance, cloud based solving allowed us to scale without hardware limitations, giving us the opportunity to double the number of projects we can take on.” - William Villers, CTO & Director of Engineering, TEN TECH LLC

“Whether building up a model from scratch or utilizing the simplicity of the software’s import capabilities for CAD and IDF data...modelling times are significantly reduced. This has helped in quickly turning around solutions during the design cycle to verify the equipment’s ability to withstand the harshest environmental conditions we know it will most probably encounter.” - Pablo Zicone, Mechanical Engineer, SELEX ES

“6SigmaET’s ability to import complex CAD files, coupled with its robust meshing and solving capabilities, significantly reduces our modelling time. We especially like the itemized results for heat distribution and the predefined thermal thresholds, which provide an easy snapshot of the simulation conditions.” - Saket Karajikar, Manager, Thermal Design Group at Hyve Solutions

“Over and above thermo-fluid modelling, 6SigmaET's library feature affords access to a PDM-like database for simulation models, making them accessible and shareable across the enterprise. This capability increases efficiencies, and brings consistency and reproducibility to our processes. The suite of features is user

friendly, easy to use, and provides good resolution and accuracy in modelling.” -  
Martin Pais, Fellow & Director, Motorola

“Thanks to 6SigmaET we were able to create simulated models of our soldering processes and now predict the behaviour of PCBs inside our manufacturing processes. The software proved to be the best market choice due to its ability to import all BOSCH PCB and product files, by its simulation speed and for its flexibility to adapt to different simulation environments.” - Miguel Peixoto, Process Engineer, BOSCH

“A novel combination of thermal simulation and virtual reality visualisation. Future Facilities has managed to optimise the performance of thermal simulation of components by a significant margin over its competitors, combined with the creative use of modern technology such as cloud computing and VR.” – Electronics Weekly magazine, 2018