rescale

Sumitomo Precision Products Accelerates Development of Aerospace Components with Expanded Simulation on Rescale

Case Study | Solution: Advanced Modeling & Simulation

SUMITOMO PRECISION PRODUCTS CO., LTD.

Customer: Sumitomo Precision Products Co., Ltd.
Location: Amagasaki City, Hyogo Prefecture
Industry: Aerospace
Products: heat exchangers, hydraulic control, etc.
Established: 1961

Reduced simulation analysis from 20 days to 1 day

Increased focus on meeting customer requirements

Rescale adopted company-wide for large-scale analysis

Sumitomo Precision Products (SPP), a global leader in manufacturing based in Japan, has grown from a precision machinery manufacturer into a diversified technology company operating across MEMS devices, semiconductor manufacturing systems, and aerospace components. Within its aerospace business, simulation plays a vital role in developing next-generation thermal management systems and ensuring performance under demanding conditions.

To meet rising simulation demands, the aerospace thermal management team adopted Rescale to run advanced modeling & simulation using Simcenter STAR-CCM+, HEEDS, and FreeFEM.

Transitioning to Rescale's digital engineering platform enabled faster, more automated workflows than were possible on legacy on-premises workstations.

To meet increasingly sophisticated and stringent customer demands, the company explored moving beyond on-premises workstations.

Today, Kenichiro Fukui (Manager) and Mario Nakayama (Assistant Manager) lead the Analysis Section's simulation efforts, focused primarily on aerospace heat exchanger development. Their legacy on-premises workstations could utilize only about five CPUs at a time, causing large models to take several weeks to complete. With customer expectations rising in both technical depth and delivery speed, the team needed a digital engineering platform with HPC capable of delivering large-scale, high-accuracy simulation results earlier in the design process.

Facing these infrastructure constraints, SPP reached out to Rescale to evaluate whether cloud HPC could support their expanded simulation requirements.

Sumitomo Precision Products Co., Ltd.
Aerospace Thermal Management Technology Division,
Analysis Section Manager
Kenichiro Fukui

SPP deployed Rescale quickly after beginning evaluation.

SPP adopted Rescale's digital engineering platform, with the decision based on several key factors:

- Support for existing tools, including Simcenter STAR-CCM+, HEEDS, and FreeFEM
- Ability to scale jobs across hundreds of CPUs to reduce compute time
- Simple, intuitive UX that lowered the barrier for daily use
- Cost model aligned with actual usage, enabling predictable project spend
- High-touch technical support from Rescale engineering staff during testing and implementation

"Beginning in the testing phase, SPP collaborated with Rescale engineers to fine-tune fluid dynamics and optimization software for maximum cloud-scale performance," said Fukui. "This partnership established a foundation of technical trust that continues today. For technical issues, the support response is fast and the quality is high."

Analysis jobs reduced from 20 days to one day, freeing the team to focus more on customer collaboration.

By moving compute-intensive workloads to Rescale, SPP achieved dramatic improvements in simulation performance. Jobs that previously took up to 20 days now complete in as little as one day, allowing engineering teams to iterate faster and respond more quickly to design requirements.

Sumitomo Precision Products Co., Ltd.
Aerospace Thermal Management
Technology Division, Analysis Section,
Assistant Manager
Mario Nakayama

This speed advantage proved especially valuable during customer proposal phases. The team could now complete multiple cycles of "analysis → verification → customer discussion → reanalysis" within tight proposal windows—a critical competitive advantage when bidding on new projects.

During the COVID-19 pandemic, Rescale's cloud architecture ensured business continuity. Engineers working from home connected remotely to office workstations and launched Rescale jobs without disruption, keeping development timelines on track despite the shift to remote work.

Word of Rescale's capabilities spread beyond aerospace within SPP. Other business units, including industrial machinery, now request CAE analysis support from the aerospace team, expanding the Analysis Section's role as an internal center of excellence for advanced simulation.

In competitive engineering environments, staying ahead requires infrastructure that enables rapid technical advancement.

"In the past, we often had situations where we wanted to do something but it was technically difficult due to hardware constraints," says Fukui. "With Rescale, the analysis environment changed dramatically. Now we can rapidly try new ideas—like modeling entire heat exchangers—that were previously impossible."

This capability shift allows SPP to move from partial models and approximations to full-system analysis, enabling deeper understanding of product behavior and more precise root-cause analysis of experimental results.

"In physical testing, engineers can only measure conditions —like temperature or pressure—at specific points, requiring significant inference to understand overall system behavior. Large-scale simulation fills this gap. With Rescale, we can understand specific root causes more deeply and see what's actually happening throughout the system, moving beyond guesswork to ensure digital continuity," says Fukui.

"After implementing Rescale, requests from other departments increased significantly," Fukui concludes. "The technical requirements have become more sophisticated, but operating at this level is essential to remain competitive. We must continue driving digital transformation to avoid being left behind. Moving forward, we'll keep using Rescale to strengthen our technical capabilities and competitive position."

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About Rescale

Rescale advances innovation and scientific discovery by providing a digital engineering platform that integrates cloud high performance computing resources, intelligent data management tools, and applied AI to accelerate modeling and simulation. The Rescale platform delivers the industry's largest network of engineering and R&D applications, automated workflows, and computing infrastructure to enterprises. The industries shaping the future are building on Rescale — including aerospace, automotive, energy, life sciences, semiconductor, manufacturing, and the public sector. www.rescale.com.