

Formula 1 mini guide

Re-engineering the race behind the race.

How Lenovo ThinkStations
are giving Formula 1® engineers
the power to supercompute
their performance.



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Lenovo

A Global Technology Partner
of Formula 1®



ThinkStation P8

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Move at the pace of the race.

When you're at the pinnacle of motorsport, the events you stage must be flawless, in every detail. And that precision begins behind the scenes.

Formula 1® is the world's largest annual global sporting series, spanning 5 continents and thrilling 827 million fans worldwide. Delivering race days of that size, scale and spectacle is a feat of epic proportions. Race-day infrastructure must be painstakingly transported across the globe to arrive exactly on time to transform the next track or city into an F1 stadium.

Formula 1 gears up for growth.

With a growing global fanbase, Formula 1 knew it needed to lay the foundations for the next decade of growth. The organization's Future Race Operations Programme, designed to standardize and scale race operations and make them more sustainable, would give Formula 1 the speed and agility to take on future challenges.

The world is watching.

Here's where the 2026 F1 races will take place.



Size. Scale. Spectacle.

Formula 1 works to deliver:

22
races

across **5**
continents

in **19**
countries

for **827**
million fans

A sustainable shift for F1® shipping.

Driven by its commitment to sustainability, Formula 1 opted to shake up its shipping strategy and shift 50% of critical race-day infrastructure from air freight to sea freight. And the change would need to happen fast.

All the equipment needed to transform tracks and city streets into F1 venues would now be shipped by sea. That means that seven colossal event infrastructure kits each carrying almost 40 miles of fiber cabling, camera towers, hospitality and technology equipment, timing systems, and signage would soon start leapfrogging each other across the globe.

And an epic feat for F1 engineers.

The kits will have to endure long transits, high moisture levels and harsh conditions at sea to arrive race-ready at the other end.

The existing shipping containers were optimized for air freight and they couldn't withstand the more extreme demands of long sea transits. So, the Formula 1 Mechanical Engineering and Design department sprang into action. They had to rapidly design and test innovative, flexible ultra-long distance shipping containers to protect each infrastructure kit. The race depended on it.

How F1 kit is shipped:



Air freight.

- Very fast.
- Carbon intensive.
- Reserved for fast turnarounds and critical race equipment like cars and sensitive IT and broadcast equipment.



Road freight.

- Moderately fast.
- Less carbon intensive.
- Used to transport ocean and air shipments to the track and for most European race cargo.



Sea freight.

- Slower, harsher conditions.
- Much less carbon intensive.
- Used for race experience infrastructure like garages and fan zones.



It was crunch time for the redesign.

The project was complex. The stakes were high. The list of stakeholders was long. And the time for design was short.

High-speed complexity. Rapid-fire change.

The F1® team were faced with large CAD file sizes, processor-hungry generative design processes and frequent revision requests from the strategy, sustainability, and event delivery teams who were all working to make sure the containers would be equal to the task.

The only way to deliver the designs on time would be to work rapidly and stay responsive during the fast-paced design iteration and review phases. Timelines were tight. And delays were not an option.

The tech behind the team.

To achieve it, F1 engineers would need workstations packed with the performance and precision to let them move fast. And, as a Global Technology Partner of Formula 1, Lenovo was on hand to provide the high-performance workstations that would give the engineers the power to iterate at breakneck pace.

Engineered for precision, performance and pace.

Equipped with Lenovo ThinkStations, advanced by AMD, the team can handle large CAD files and datasets with ease, speed up regeneration times by 50% and accelerate design iteration. The machines gave F1 engineers the power to maintain momentum, hit their deadline and supercompute their performance.



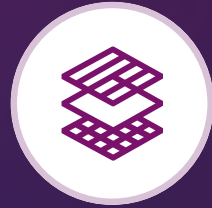
Lenovo's workstation platform supported our engineering team throughout the freight container redesign project. Reliable performance with large Creo assemblies and Windchill managed data helped us maintain our iteration pace and meet our logistics timeline."

Amie Smith, Head of IT Systems and Support, Formula 1

Lenovo ThinkStations kept everything on track.

Here's how Lenovo ThinkStations help F1 engineers perform at their best during every stage of their workflow.

The team's tools:



PTC Windchill,
Product Lifecycle Management



PTC Creo,
parametric 3D CAD



Concept development.

Aim: Develop new shipping container designs.

Challenge: • Large file sizes • Many design revisions.

How ThinkStation helped:

- Faster iteration on large, processor-intensive CAD files
- Less friction when making multiple design changes per day.



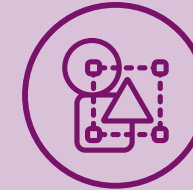
Proposal & review.

Aim: Review with multiple stakeholders, ensure containers are fit for purpose.

Challenge: • Many stakeholders • Designers must revise work rapidly when things change.

How ThinkStation helped:

- Powerful processors sped up work and kept things moving.
- Stable performance meant fewer delays during high frequency design changes.



Revision & iteration.

Aim: Perfect the design.

Challenge: • Graphics intensive workloads • Tight turnaround times • Juggling multiple projects at once.

How ThinkStation helped:

- With high-performance CPUs and GPUs, designers were faster and more responsive.
- Regeneration times in Creo reduced from 30 to 10 seconds.
- High-core count meant tasks could run in the background without impacting modeling.



Collaboration.

Aim: Collaborate across locations, work on the same project on different machines.

Challenge: • Multiple people working on the same project • Co-workers continue their work when team members travel for races • Up to three people working on a project at once.

How ThinkStation helped:

- Powerful workstation performance meant smoother handoffs and file sharing.
- Prevented collaboration from becoming a bottleneck.



Transition to manufacture.

Aim: Smooth and timely handover to manufacturing.

Challenge: • Any delays to the manufacturing phase would have risked the containers not being freight-ready at the deadline.

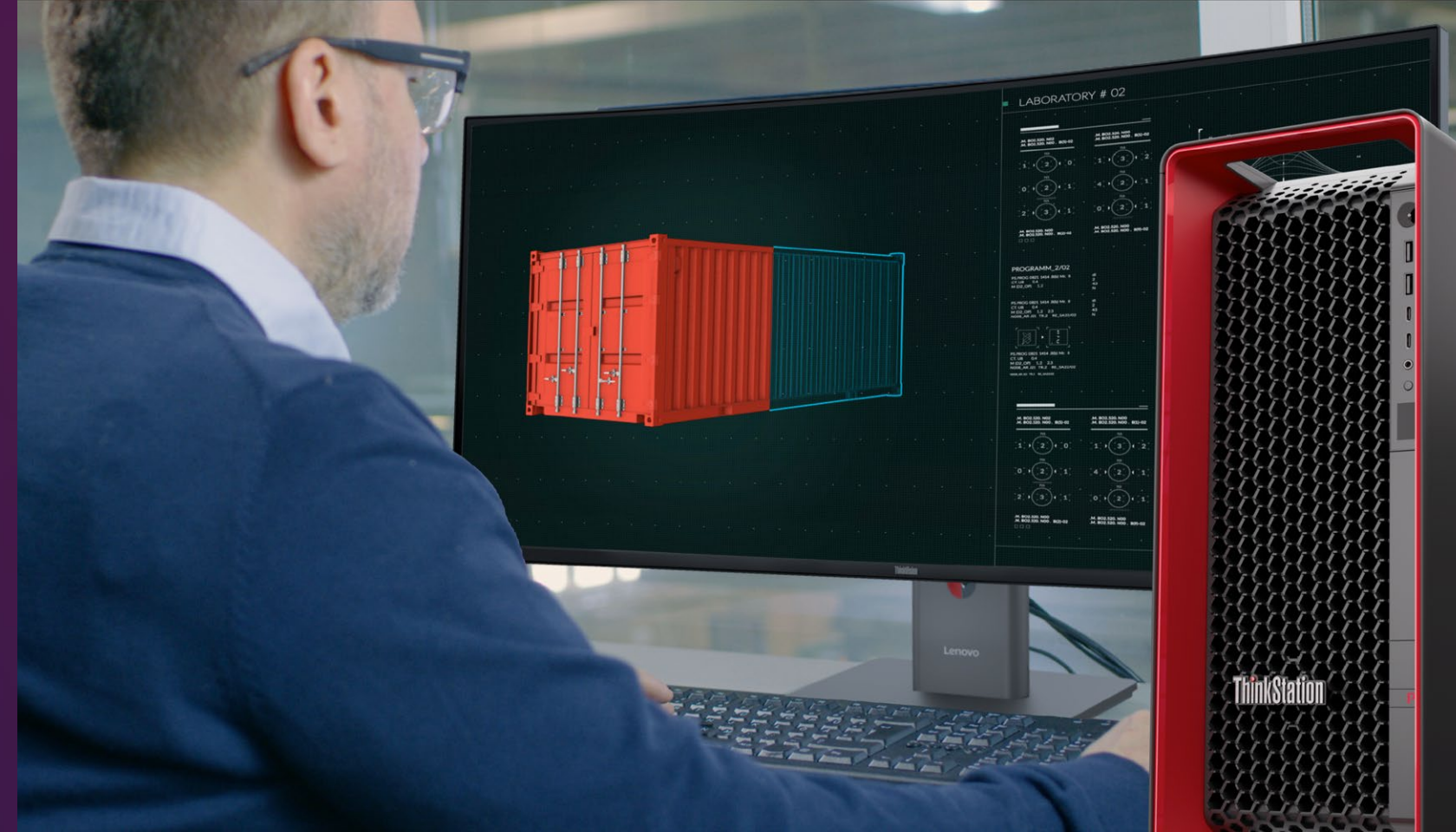
How ThinkStation helped:

- High-performance machines accelerated the design phase.
- Manufacturing received final design files faster.



Drive your projects forward with Lenovo ThinkStation.

Raw power. Incredible precision. Built-in protection. Personalized performance. That's what made the F1 freight container redesign possible. And it's all packed into Lenovo ThinkStations, advanced by AMD: primed to fuel your productivity, supercharge your vision and supercompute your work.



PERFORMANCE

Perform without limits.

Handle heavy workloads faster with powerhouse performance from Lenovo ThinkPads and ThinkStations advanced by AMD Ryzen™ Threadripper™ PRO and AMD Ryzen™ AI PRO processors and supported by innovative thermal design. So you get the power to create, simulate and render uninterrupted.

PRODUCTIVITY

Move from bottlenecks to breakthroughs.

Keep even your most intensive workflows moving. Lenovo ThinkStations are advanced by industry-leading architecture from AMD and Lenovo's intelligent real-time performance tuning, for rapid multitasking and reliability across demanding datasets, complex AI models and multi-application workloads.

PERSONALIZATION

A supercomputer. Custom-made for you.

Nobody knows the way you work better than you do. And with Lenovo ThinkStations, you can easily configure your workstation for your individual workflow. With tool-less access and replaceable units, these configurable machines let you expand and upgrade as your needs evolve.

PROTECTED

Powerful. Precise. Protected.

Keep your work, data and devices safe with ThinkStations' legendary reliability and ThinkPad's MIL-SPEC tested durability. Thanks to built-in security from Lenovo ThinkShield and AMD PRO Technologies and AI-powered predictive threat detection, you can defend your work against evolving threats, no matter where you are.

Ready to supercompute your performance?

Explore Lenovo ThinkStations and see what supercomputer performance and workstation precision could do for you.



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