CFM RISE demonstration program: putting safety first, maximizing engine efficiency

Meeting customer needs:

- Improve on existing **standards of safety** in the air and on the ground

- Targeting **20%+ fuel burn** improvement through unlocking propulsive efficiency

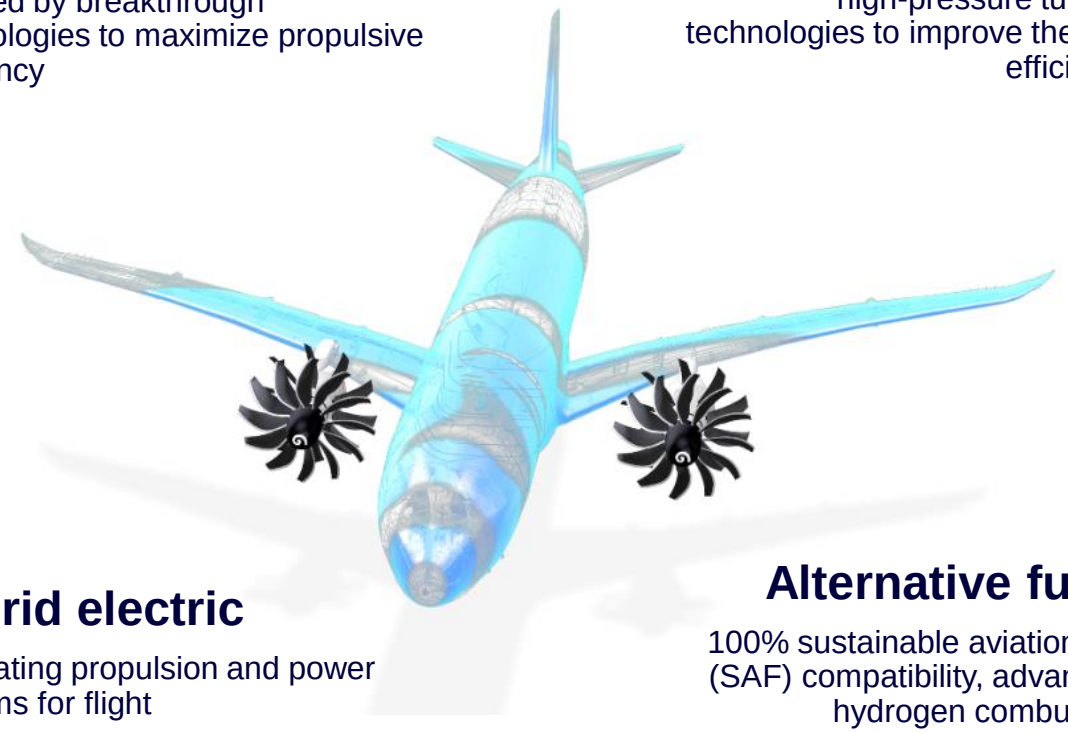
- **Early focus on designing for durability**, performance

Open Fan

Largest fuel burn improvement enabled by breakthrough technologies to maximize propulsive efficiency

Compact core

Compressor, combustor, and high-pressure turbine technologies to improve thermal efficiency



Hybrid electric

Integrating propulsion and power systems for flight

Alternative fuels

100% sustainable aviation fuel (SAF) compatibility, advancing hydrogen combustion

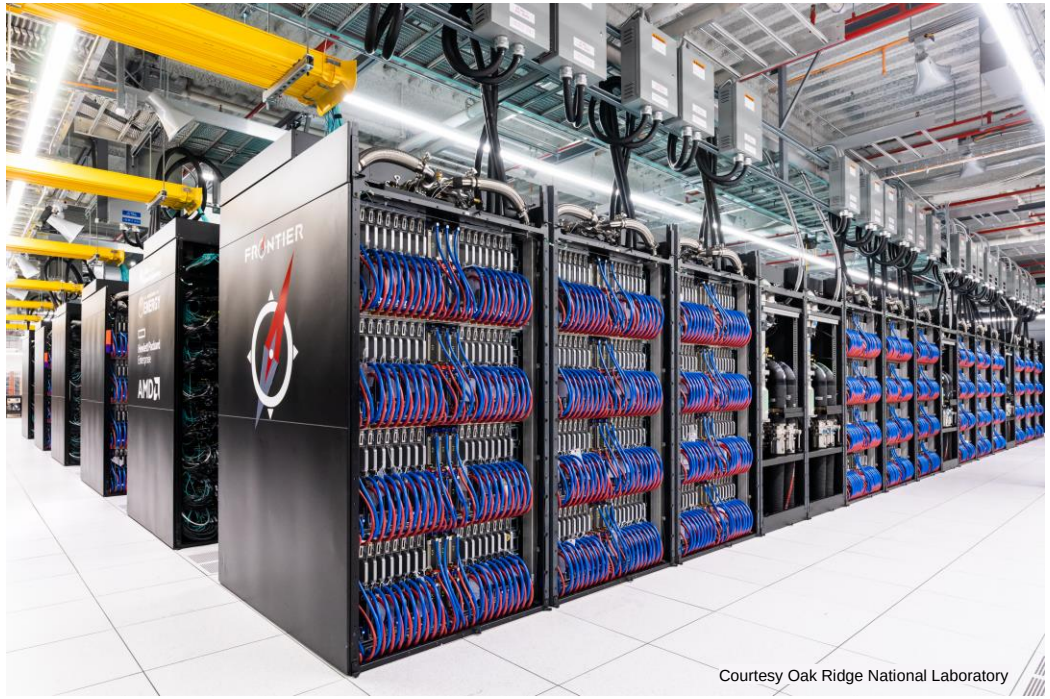
Advanced engineering capabilities enable technology breakthroughs

RISE is a program of CFM International, a 50-50 joint company between GE Aerospace and Safran Aircraft Engines

Leveraging internal and external investments in supercomputing

First to break the exascale barrier and currently second fastest computer in the world

OAK RIDGE National Laboratory



Courtesy Oak Ridge National Laboratory

1.1
EXAFLOPS
Frontier can do more than 1 quintillion calculations per second.

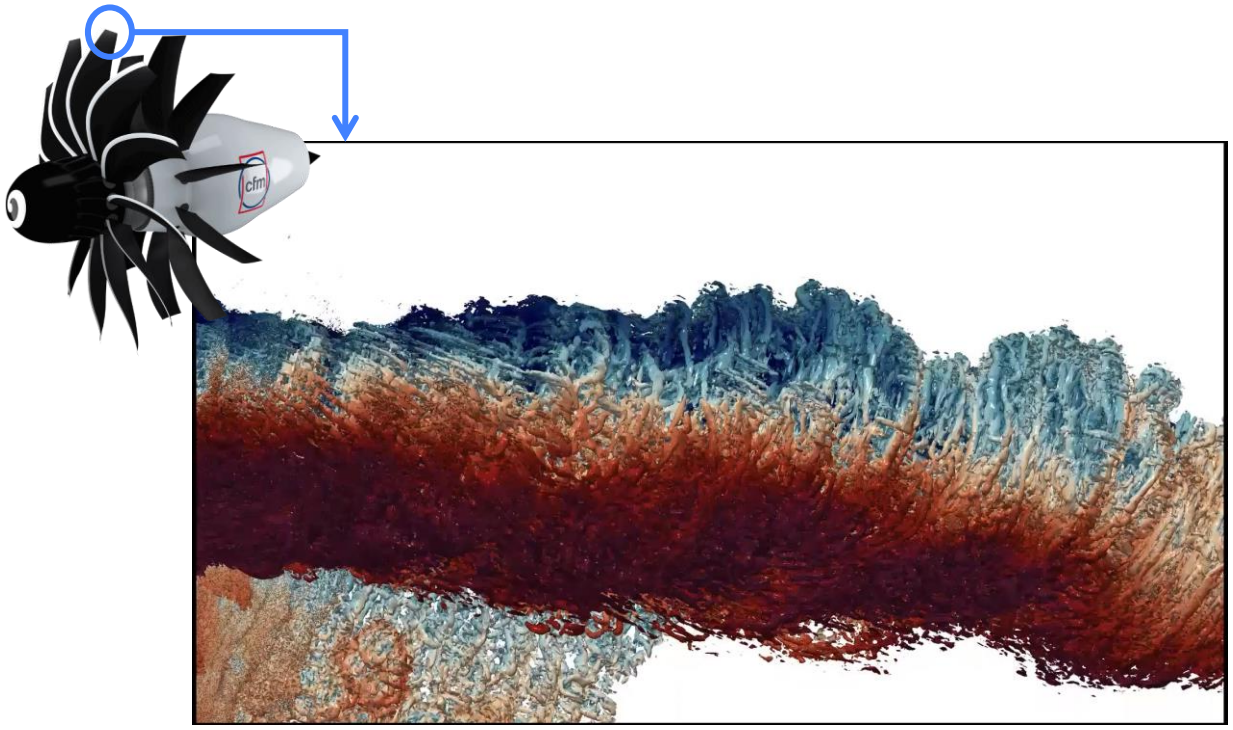
1
SECOND
If each person on Earth completed one calculation per second, it would take more than 4 years to do what an exascale computer can do in 1 second.

8,000
POUNDS
Each cabinet weighs the equivalent of 2 full-size pickup trucks.

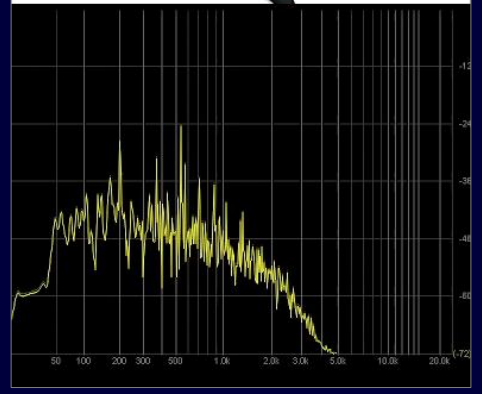
40
MEGAWATTS
Frontier's mechanical plant can cool the equivalent power demand of about 30,000 U.S. homes.

GE Aerospace: One of the largest users of U.S. Department of Energy exascale supercomputers

More than 3 million supercomputing hours won since 2022



- New capability in last 10 years supports faster, improved design iteration
- Enables optimization of aerodynamics for low noise and high performance
- Able to fully simulate flight conditions, impossible before exascale
- 100% match in our predictive capability with engine results



First industrial user of Frontier

Spin Test Facility

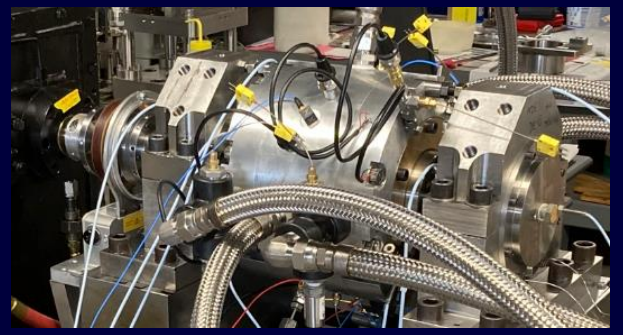
More than $50 million investment over a decade+ to create this unique capability

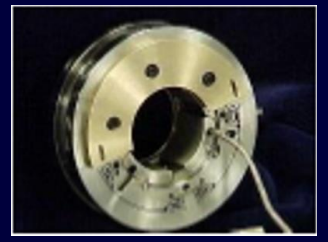
Focused on developing mechanical system technologies for next-generation architectures

- Help promote high success rates in engine demos
- Testing of realistic mission profiles and failure modes
- New material development
- Durability testing
- Full scale prototypes

Currently test facilities support broad range of tech dedicated to RISE program

- Can test **full scale rotor systems** up to 30,000 RPM, driven by 2,000hp motor
- Can test 8 **sub-scale bearings** simultaneously 24/7 for long term durability testing
- Several versatile test platforms for everything in the middle

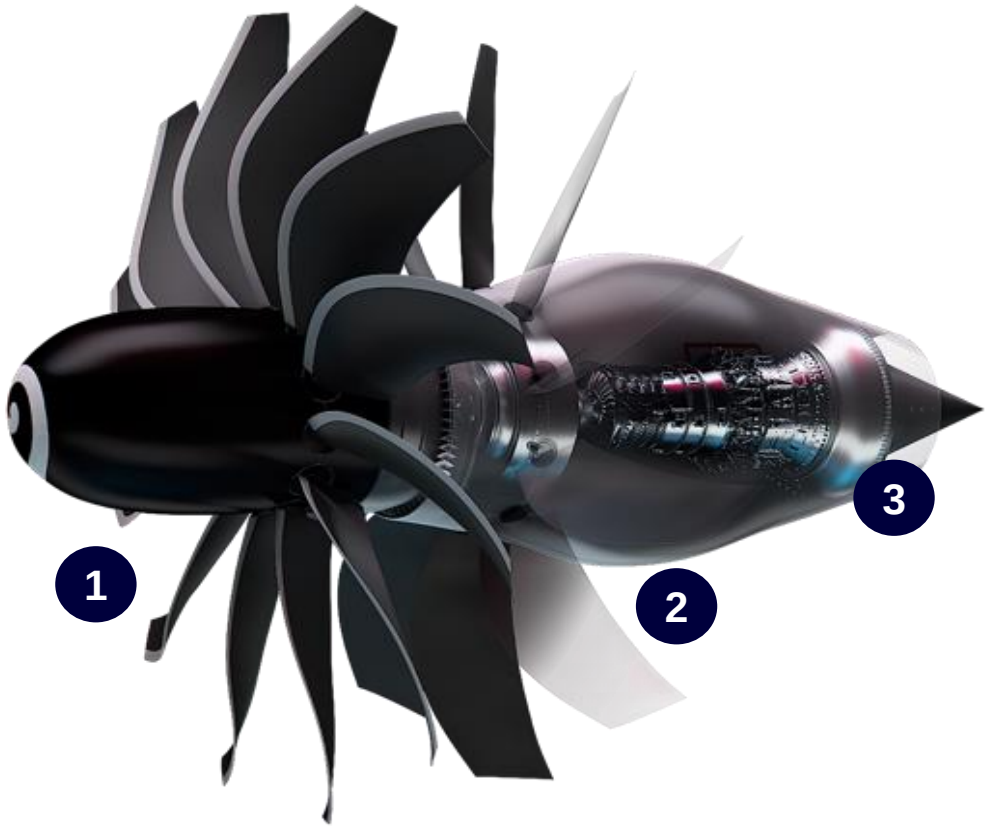




GE Aerospace

RISE is a program of CFM International, a 50-50 joint company between GE Aerospace and Safran Aircraft Engines

Spin Test Facility can support system, component and material level testing for CFM RISE program



… Tests mimic hours and cycles that engine technologies would experience over lifetime in use

1. Fan pitch actuation system
2. Core rotor
3. Low-pressure turbine rotor

RISE is a program of CFM International, a 50-50 joint company between GE Aerospace and Safran Aircraft Engines