



Aurora

100 km

Apogee (Space)

11 m

Length

5.2 Mach

Top Speed

0.5 m

Diameter

Aurora is KSP's Spaceshot Rocket, which is set to become the first student-built fully-reusable rocket to reach space.

A single stage space-grade launch vehicle design enables fast recovery, launch reliability, and minimal time between launches (<24h) after minor or no repairs.

Aurora is designed and built from the ground-up by students at Imperial College London. It is designed to be fully reusable and harnesses the latest innovations in aerospace design, material science, analysis, and manufacturing.

The Cactii engine will fire for 43 seconds to accelerate Aurora to over 5x the speed of sound on the way to the Karman Line. The rocket will experience over 100 seconds of microgravity on its journey to space.

The two-parachute recovery system decelerates the vehicle as it reenters through the earth's atmosphere, and slows it to a gentle touchdown in the recovery zone.

Custom avionics control propulsion parameters, track vehicle telemetry, and unlock HD video livestreaming directly from the rocket to the world.



Cactii



Cactii is an additively-manufactured regeneratively-cooled liquid bipropellant rocket engine. It was designed from a clean sheet using the latest metal 3D-Printing and topology optimisation methods. Coaxial Swirl Injectors enable complete combustion. At 43kN nominal sea-level thrust, Cactii is set to become the world's most powerful non-governmental non-commercial rocket engine ever built.

43 kN

Sea Level Thrust
55kN in a Vacuum

37:1

Engine
Thrust-to-Weight
Ratio

Ethanol

Fuel

20 Bar

Chamber Pressure

4.3:1

Nozzle Expansion
Ratio

LOx

Oxidiser

