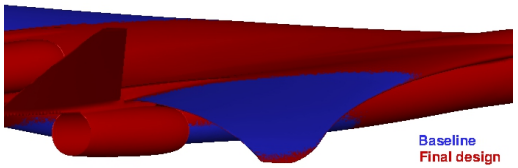


Inviscid & RANS sensitivity computation, and optimal aerodynamic shape design

NASA/Lockheed-Martin N+2 supersonic aircraft configuration

About SU²

SU² is an open-source software suite for high-fidelity Partial Differential Equation (PDE) analysis and design of PDE-constrained systems on unstructured grids.

In addition to the full source code, Mac OS X, Linux and Windows binaries are also available for download.

SU² EDU

A new educational version of the Euler/Navier-Stokes/RANS solver from the SU² suite. The simplified structure of this version of SU² makes it well suited for students and beginners in CFD. SU² EDU is ideal for use in CFD courses, for independent studies, or just to learn about a new field!

http://su2.stanford.edu

SU² is an advanced, flexible, open-source tool that can be used for:

- High-fidelity analysis
- Adjoint-based design
- Multi-physics simulations
- Adaptive, goal-oriented mesh refinement

Documentation and a full description of current and upcoming features are available on the SU² website:

http://su2.stanford.edu

Email the development team:
susquared-dev@lists.stanford.edu
or post your question in the CFD online forum.

http://www.cfd-online.com/Forums/su2/

STANFORD AERONAUTICS & ASTRONAUTICS

aerospacedesignlab

SU² is under active development by the Aerospace Design Laboratory at Stanford University. Visit the ADL at:

http://adl.stanford.edu

SU²

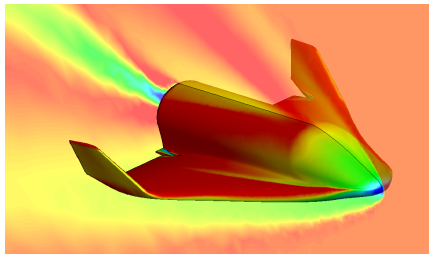
SU² v3.0 "Eagle"

High-performance and industrial-grade shape design for everyone.

SU² EDUCATIONAL v1.0

Educational version of SU², perfect for learning the basics of CFD.

SU²: The Open-Source CFD code



High fidelity CFD hypersonic simulation

SOAR shuttle concept – S3 Swiss Space Systems

aerospacedesignlab

High-Fidelity Analysis

- Able to handle internal and external flows
- Works on arbitrary unstructured grids and includes a Pointwise® plugin for mesh generation
- Euler, Navier-Stokes, RANS, rotating frame, axisymmetric and incompressible equations
- Steady and time-accurate analyses
- Implicit solver with advanced (multigrid and others) convergence acceleration techniques

Shape Optimization

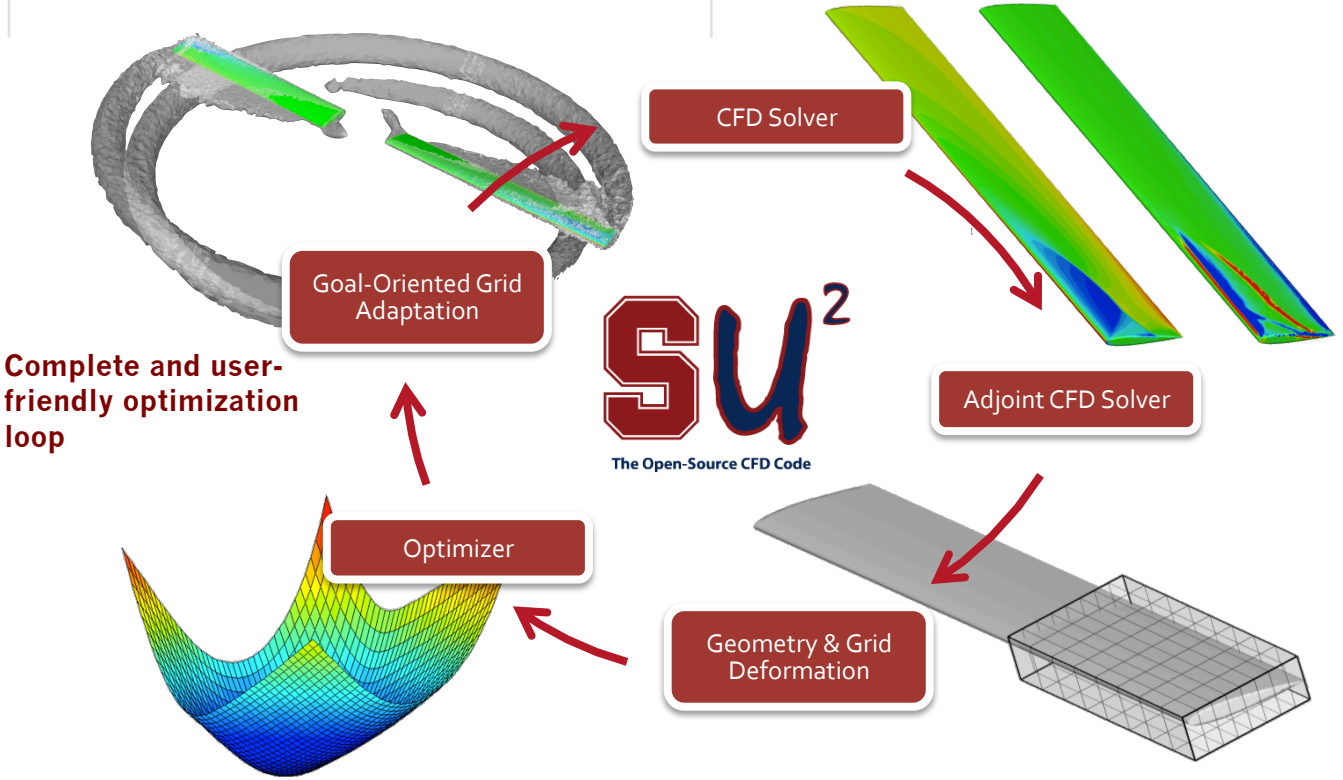
- Self-contained optimization environment using standard Python libraries, such as NumPy and SciPy
- Gradient computation using the adjoint approach
- 3D design variable definition using free-form deformation boxes
- Built-in geometry and mesh deformation

Multi-Physics Simulations

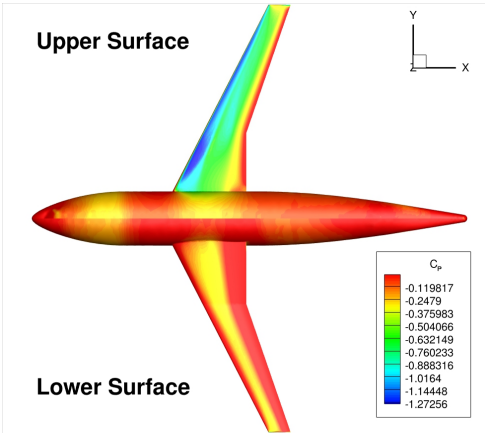
- Flexible C++ architecture for rapid implementation of new equations
- “Solution containers” allow for simultaneous analysis of different equation sets with tight coupling
- Complete framework tailor-made for coupled analyses

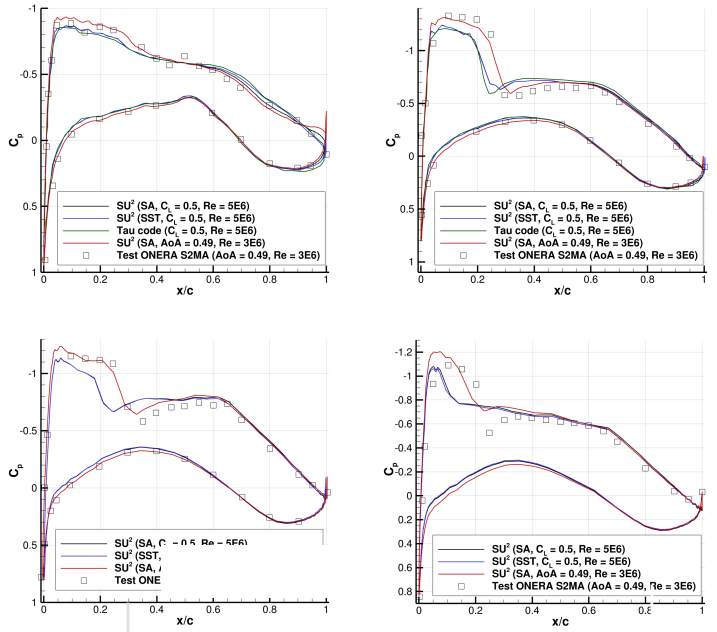
Open-Source

- Software released under the GNU LGPL (v2.1)



Complete and user-friendly optimization loop





Detailed Verification and Validation of the RANS CFD solver

DLR F6 wing body configuration – DPW III