

# Fast mesh morphing makes go-karts faster and faster

## hpc speed

Calculations run at Tor Vergata University HPC facility:

- 48 cores @ Intel Xeon;
- 96 Design Points 80 hours (600000 iterations).

## extent

ANSYS Workbench driven optimization:

- Custom built Design Of Experiment based on 16 shape parameters implemented by RBF Morph;
- Drag force reduction target accomplished by Response Surface Optimization method (DesignXplorer).

## accuracy

High fidelity CFD validated by coast down test data.

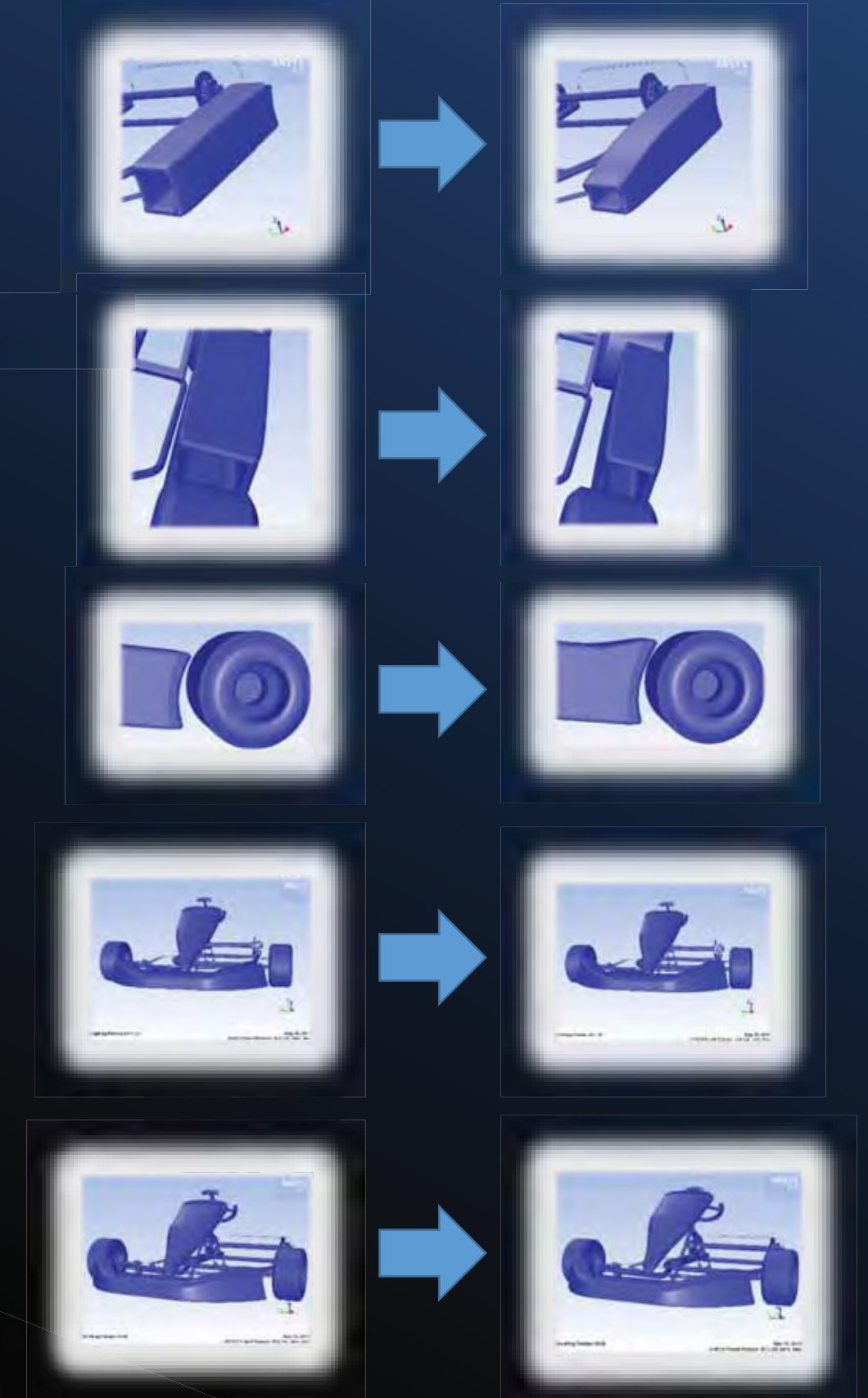


ANSYS Fluent case specification:

- 6.5 million fluid cells;
- Realizable  $k-\epsilon$  turbulence model.

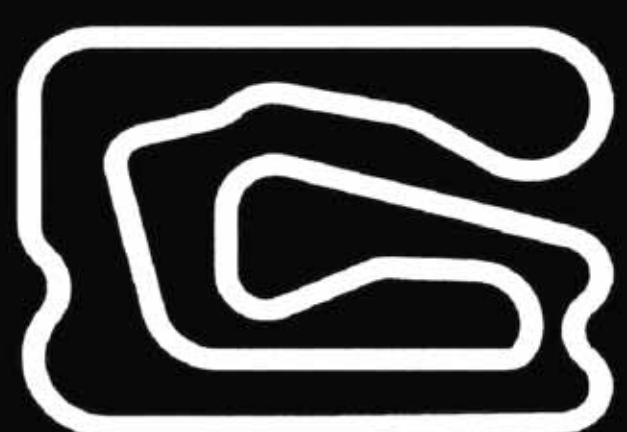
## parametric

Several parametric shape changes has been made using the ANSYS Fluent Add On mesh morpher RBF Morph.



## performance

0.218 sec lap time gain on Parma circuit. Evaluation made comparing morphed and baseline configurations by the UTV lap time simulator.



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(rbf-morph)<sup>™</sup>